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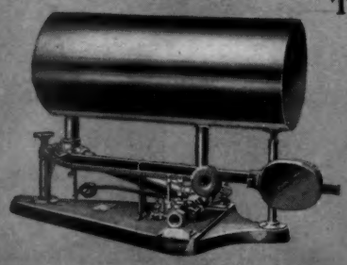

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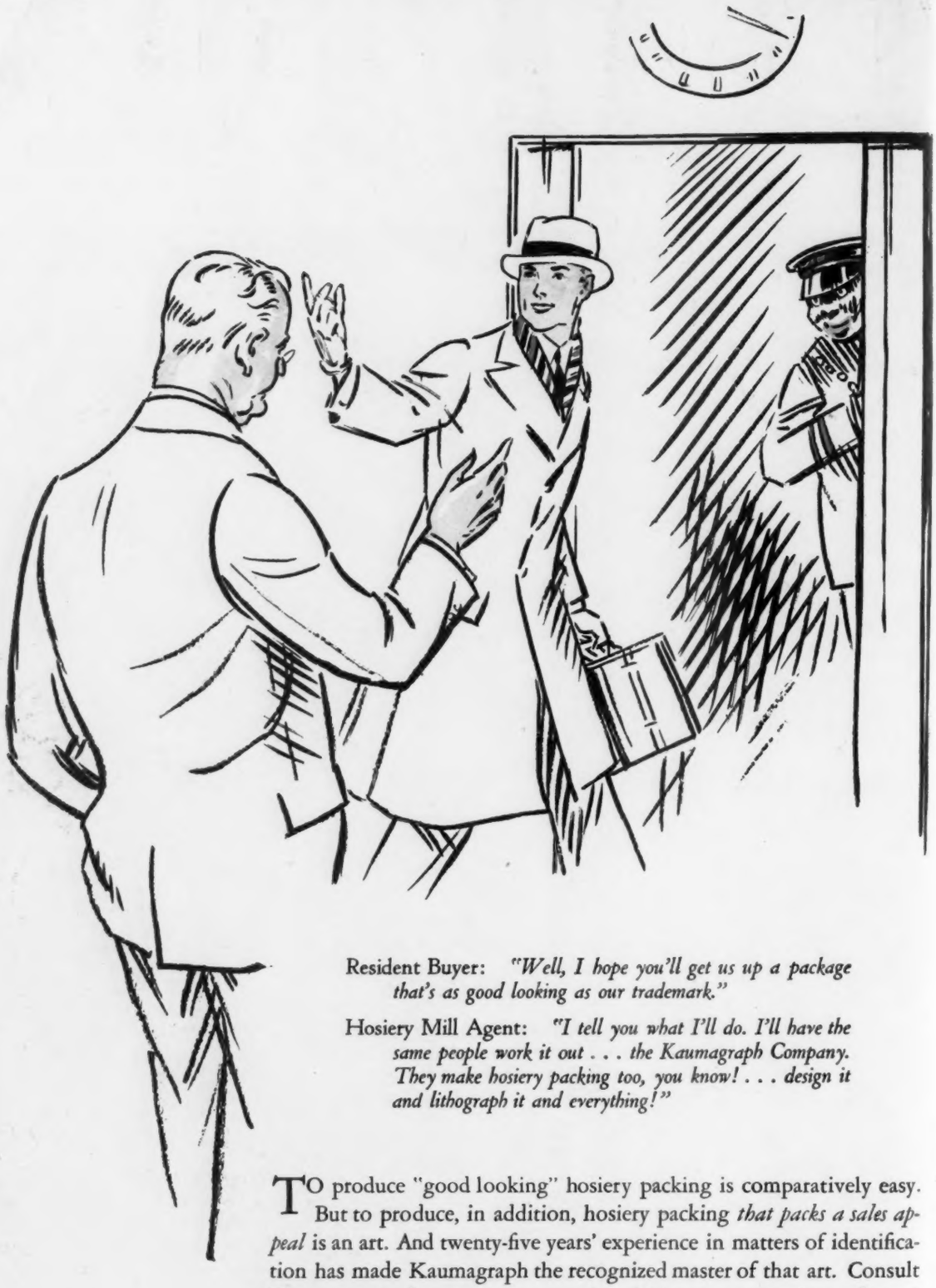
Table of Contents, Page 88. Buyers' Index, Page 178. Advertisers' Index, Page 190.

KNITTING SECTION, Page 445



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Contents

General and Technical—

"The Meeting Will Come to Order—" ---- 369
Southern Delivery Meets With Favor ---- 369
Proper Ginning Improves Staple ---- 370
Determining Individual Cotton Fiber Strength ---- 374
Come With Me, Comeling ---- 377
Layman's View of Textile Industry ---- 379
Dyeing Sulphurs in Circulating Machines ---- 381
Profits in Full Packages ---- 383
Budget Control in Cotton Mills ---- 386

Current Topics—

Cults, Fashions and Consumption ---- 391
Cotton Fabric Versus Jute ---- 391
We Go to "War" for Shipping ---- 392
The Tariff and News Values ---- 392
What the Southern Mills are Doing ---- 394
Cotton Comment ---- 394
Trade With Argentina ---- 396
New England Mill Situation ---- 396
Notes About Men You Know ---- 398
An Old Timer Says— ---- 401
New England Tries New Manufacturing Methods ---- 405

How Other Men Manage—

Wants Suggestions on Spindle Speeds ---- 407
Mineral Oil in Softening ---- 407
"Textile Salesmen I Have Met—" ---- 408
"T. A. D." Answers His Critics ---- 408
Some Points on Carding ---- 411
A Method for "Setting" Filling for Weaving 411
Picking a Lease for Resizing a Warp ---- 415
More About the Multiple System ---- 415
Layout for 70s on Long and Short Draft ---- 417
Humidity and End Breakage ---- 417
Polishing Steel Rings on Twisters ---- 418
Weights for Slasher Squeeze Rollers ---- 421
Figuring an Organization ---- 422
Picking a Lease for Resizing a Warp ---- 426

Knitting Section—

Manufacturing Full-Fashioned Hosiery (Article Three) ---- 447
Selecting the Proper Dyestuffs (Part Seventeen—A B C of Dyeing) ---- 453
Operating and Adjusting the Banner Knitting Machine (Part One) ---- 457
Criticizes Baxter's Mill Lay-Out ---- 461
Operating a Suggestion Box for Employees 463
Wants Waste Figures for Standard H ---- 464
23 Per Cent Versus 25 Per Cent Boil-Off ---- 464
Has Plaiting Trouble on Underwear ---- 470
Spreaders on Underwear Machines ---- 470
Another Man Disagrees With Baxter ---- 470
The Yarn Market ---- 471
The Knit Goods Market ---- 473
Among the Knitting Mills ---- 485

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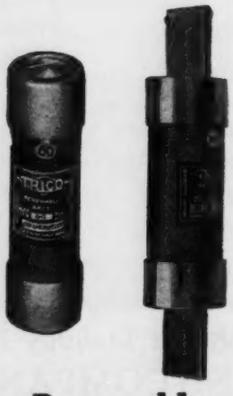

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Vol. 93 **COTTON** No. 4

February 1929

"The Meeting Will Now Come to Order—"

IT is interesting to reflect upon the striking differences in convention procedure in the textile manufacturing industry in recent years. The mills have always supported the various trade associations, especially considering them, through their perennial conventions, as affording a medium of contact and good fellowship. It is obvious, however, that within comparatively recent times, the scope and activities of the various trade organizations have been amplified tremendously, and, with the addition of new bodies—notably the Cotton-Textile Institute—these groups have established themselves more definitely as integral parts in the functioning of the industry.

The case of the practical operating executives of the southern mills may be used as an example. Generally speaking, prior to 1920 the meetings held laid emphasis upon social contact and entertainment. About nine years ago, however, Gordon Cobb, Marshall Dilling and others instituted round-table discussion meetings, devoted to the major manufacturing departments of the mill. The plan apparently filled a need, for the idea grew from three divisions—covering carding, spinning, and weaving—to a ramified organization through which practically every phase of processing, including dyeing and finishing, is covered; and the idea has been applied by several organizations in addition to the Southern Textile Association.

A detailed discussion of the accomplishments—tangible and indirect—of this discussion work would be lengthy, though interesting and vital. The group discussion plan brings the men together informally to consider mutual manufacturing problems, and they do this earnestly and sincerely, realizing that the contribution of a single idea will reap a dividend of several others, for each man who attends. It is a safe assertion that no single movement has contributed as much to the improvement in efficiency and manufacturing ability of the southern textile operating executives as has resulted from the conduct of these group discussion meetings and of the work allied with them.

That the benefits of these activities are becoming recognized by mill owners is evident in the oft-repeated statement of one prominent mill president to the effect that his own co-workers among the financial heads of the mills could well emulate the operating men in their exchanging of ideas and cooperative work in the solution of common problems.

There are others, however, who still regard these associations in the light of conditions of previous years, and who fail to appreciate the opportunities afforded by the meetings of the present day. With the annual convention season approaching, it is hoped that these executives and their operating heads will more generally support, and thereby reap definite benefit from, these mill-problem, practical discussion meetings.

Southern Delivery Clause in Contract Meets with Favor

INCLUSION of southern delivery points in the New York Cotton Exchange cotton contract was a move which has received wide-spread approval among southern millowners, many of whom have for years advocated just such a step upon the grounds that it would provide a broader, safer market in which to operate, and with the feeling that it will reduce the possibility of manipulation of months by other interests.

The amendment to the contract provides for delivery at five southern points—Norfolk, Charleston, New Orleans, Houston and Galveston. A differential of 35 points between deliveries at these points and delivery at New York was established at the same time. This amount, it has been explained, representing the uniform freight rate from each of the five southern delivery points to the New York market.

At the time this change was adopted, two other important and significant changes were made in the by-laws of the Exchange. One of these was the establishment of what is known as a control committee, and the other limits the interest in contracts.

Proper Ginning *Improves* Staple

Results of Tests Show that Spinnability of Fiber Can Be Increased by Suitable Treatment Prior to Ginning Operation

By Hibbard S. Busby

Director, Textile Department, Ga. School of Technology

ACCORDING to the facts revealed in this article, mills generally should give more consideration to the ginning of their stock, a process which they for so long have apparently taken "for granted". That some mill men are investigating the value of proper and careful handling of the cotton before it goes into the mill is indicated by the installation of ginneries by a number of mills in the South for handling at least a portion of their requirements. The April, 1928, issue of COTTON described one such installation—at the Profile Cotton Mills, at Jacksonville, Ala., where President Greenleaf considers the money and effort he expends in ginning his own cotton extremely worthwhile. He has proved that the preparation of the cotton for "good running work" can be extended back one step further than the opening room, where so many mills are concentrating at this time. Following the description of Mr. Greenleaf's gin last year, the facts in the present article are presented to induce greater interest by mill men in this important phase of the industry.

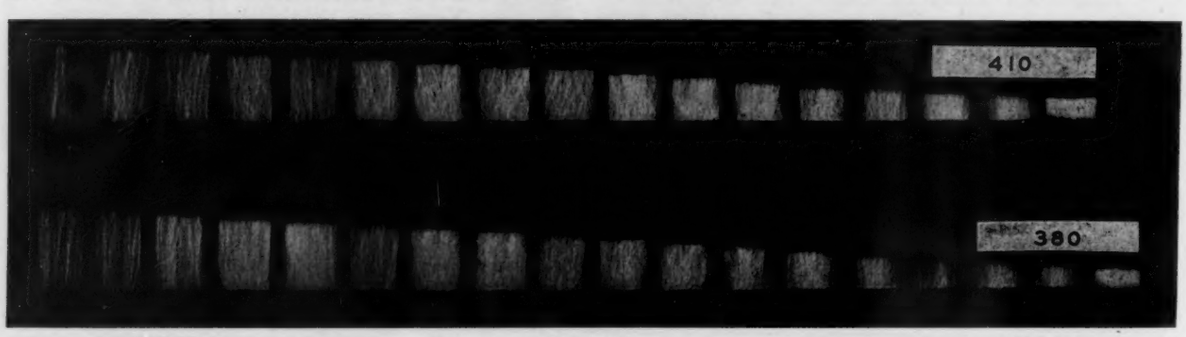
DURING the conference of mill representatives, who met last Summer at the Georgia School of Technology to investigate problems and acquire skill in the handling and judging of cotton staple, an attempt was made to find out what predominant factor had emphasized itself in the experience of these men as of most effect, in all the processes of cotton manufacturing, upon the quality of the product of the mill. It was practically a unanimous opinion that the ginning process was paramount in importance to cotton manufacturing.

This is a surprising statement from a group of mill men, as it would be reasonable to expect from their closeness to the processes of opening, carding and spinning, that some phase or detail of one of these particularly mill operations would stand out above the rest in the mind of a mill operating man. Inquiry in some detail, however, brought forth certain observations which have been the keynote of the investigation, the results of which are set forth as follows:

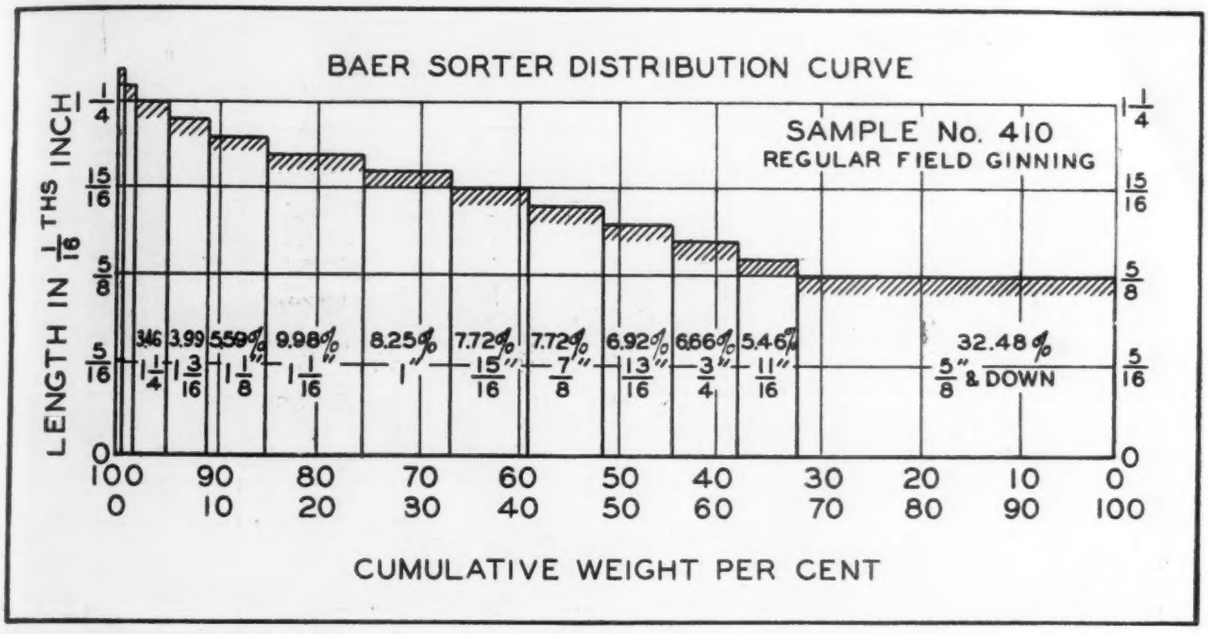
First, no mill process is able to correct defects of seriously damaged staple caused by faulty constructed, operated or adjusted gin machinery.

Second, if improper ginning is done, an inevitable result of it is to deliver to the bale a high proportion of cut fibers, which, in the case of staple of inch length and below, can never be handled efficiently in the regular cotton mill processing machinery, and a very high percentage of waste in the mill process is due to this fact. In the case of so-called long staple fiber, improper ginning results in some shortening of staple, due to cutting; it also results in tangling this cut staple with the longer (uncut) fibers, and much of this messy condition carries through into advanced stages of the yarn manufacturing process. Even when this tangle is corrected a result of it is irregular and sketchy (bunched and thin) delivery of fiber into the process stream, and any observant mill man knows that this condition is one of the chief causes of irregular diameter of yarn, low hank count standard, and low break point in the yarn.

Third, the ginning operation either includes or excludes the necessary and proper bulk of fiber from the boll cotton. If it skimps, that is, pulls out only certain favored or occasional fibers for a given bulk of cotton in the seed, then it is unnecessarily wasteful and may eliminate even the most desirable fibers. If, on the other hand, it passes, incompletely ginned, what appears to be a satisfactory bulk of the staple, by doing so it may actually pass onto the mill process machinery a task for which such machines are not fitted, that is, ginning. Two things in general result from this: (a) incompletely carded and aligned fibers, and (b) inclusion of short staple lengths which hamper the operation of the preparatory processes and materially shorten the life of both the operating surfaces of



Baer Sorter Distribution of fiber percentage in Bale 410, ginned without previous treatment, and Bale 380, pre-cleaned prior to ginning. Note comparative amount of different staple lengths.



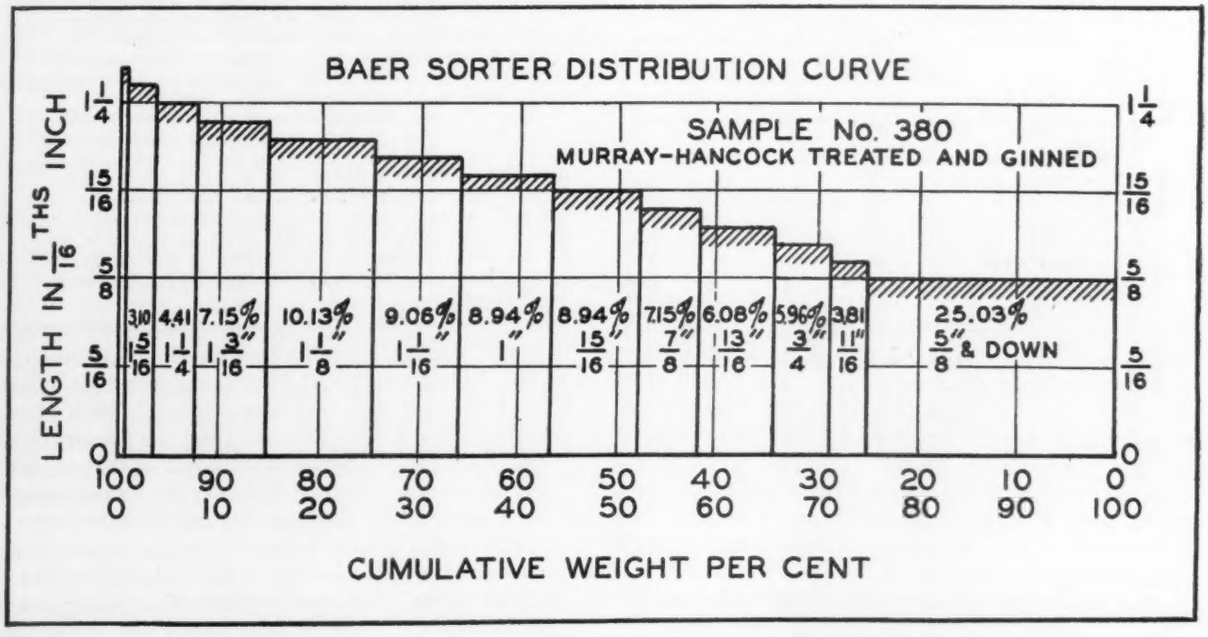
The figures in this chart, and in the one below, are self-explanatory, showing the percentage of each staple length in each sample.

these (such as the card clothing) and, to some degree, the actual life of the preparatory machinery itself.

Following upon the suggestions indicated, we set out to investigate the conditions surrounding ginning of various commercial cottons, from a wide range of sources. This study first embraced the Piedmont section and was later extended to the middle South and Southwest. When the study is finally completed it will extend to the Pacific Coast cottons, and to a certain degree, into Mexico. Representative cottons were studied, in their seed, at maturity, and then combings, or rosettes, were made around a selection of the seeds, and these carefully examined for the characteristic nature of the staple developed on them.

It was found that three distinct types of staple growth, from the bulk viewpoint, were in general use in southern mills. The first combs out a thin, fairly smooth, and rather uniformly long set of fibers on any one seed. The second is bulky, thick, and uniformly short in fiber. The third is a mixture, *apparently*, of short and long fibers, is only of medium thickness on any given seed, and examination develops that this "short and long" condition is only an apparent one, that a very large percentage of the "short" fibers are simply more curled than the long ones, also that if proper combing action be applied to them, in combination with the other fibers, these "short" fibers will assume nearly the same length as the others.

It is noticeable, too, that cotton of this type does not mill with a high percentage of economy, probably



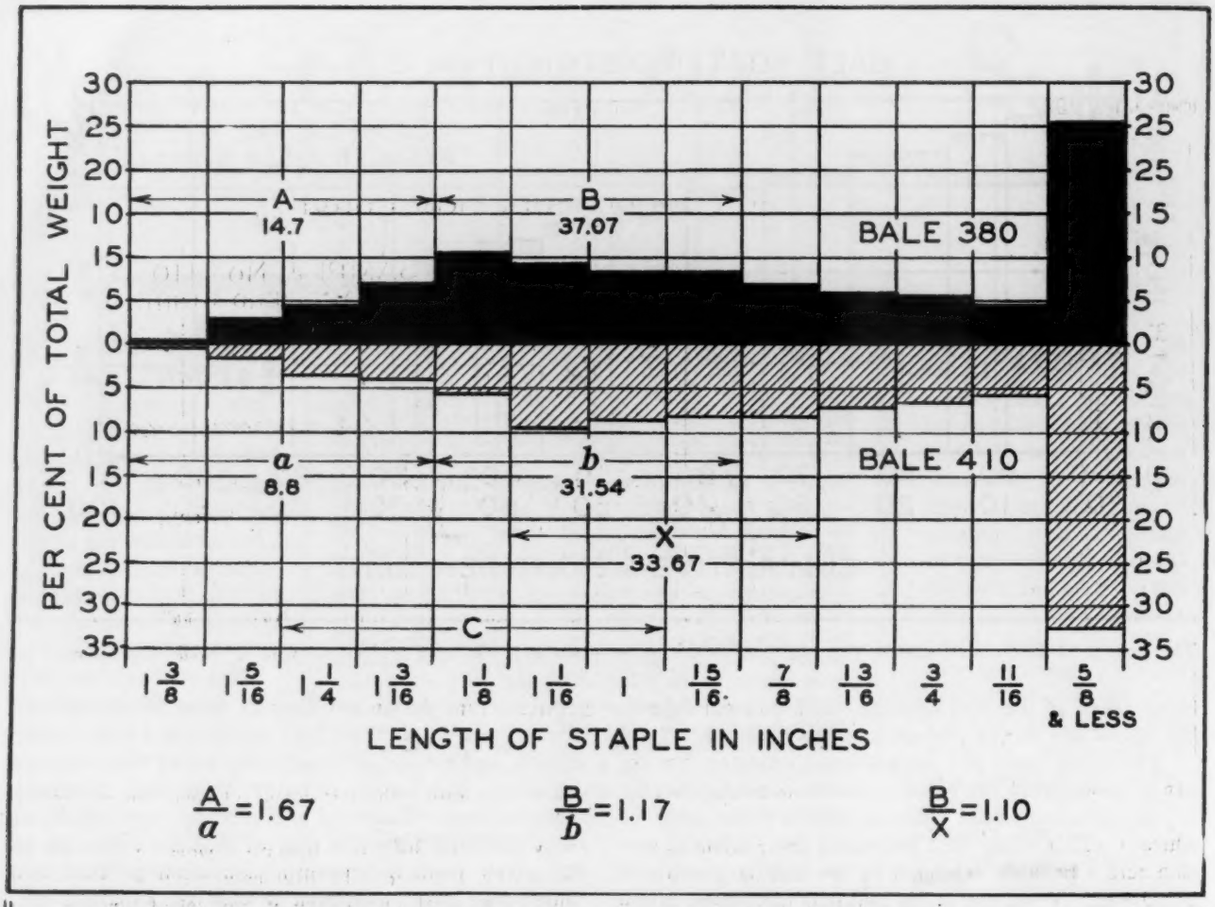


CHART C, SHOWING A COMPARISON OF STAPLE PERCENTAGE IN COTTON GINNED IN THE REGULAR WAY COMPARED WITH COTTON CLEANED AND OPENED BEFORE GINNING.

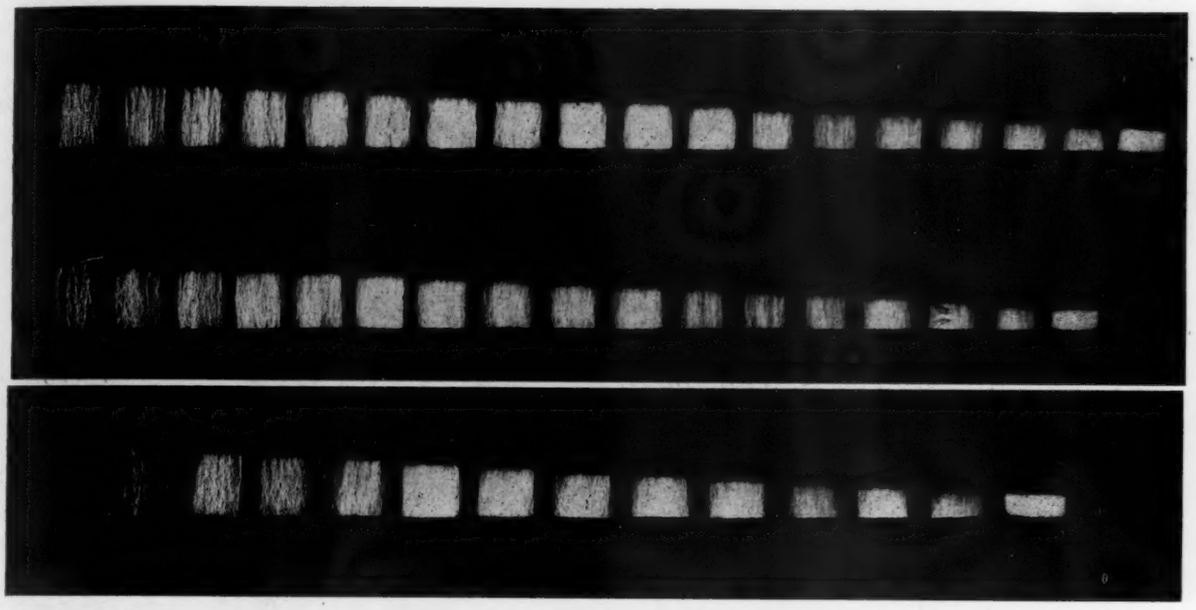
Two bales of cotton said to be about 1 5/16-inch staple, were given the following run: Bale No. 410 was run on a regular saw gin, and Bale No. 380 was run on a regular saw gin following a preliminary opening and cleaning on the Murray-Hancock machine.

In a hand pull of the staple, Bale No. 410 yielded approximately 1¼-inch staple. Of the twelve major divisions of staple combed out from this bale, the highest was 1 1/16-inch for a percentage of 9.98 per cent. Tailings from the bale gave 32.48 per cent of ⅝-inch and less. Bale No. 380 in the hand pull was approximately 1¼-inch. The highest staple was 1⅛-inch, for 10.13 per cent, and the tailings on this bale by the hand pull were 25.03 per cent for ⅝-inch and less.

The above chart, showing Bale No. 410 ginned without pre-treatment, and Bale No. 380, ginned following the opening and cleaning pre-treatment, show graphically the percentages of each length of staple in each bale. Assuming 1¼-inch staple length as the commercial staple pull, and taking 1/16-inch above and below this, we have the region marked "A" and "a" for the two bales. Dividing "A" by "a", we get 1.67; in other words, 67 per cent of commercial size staple was added by the pre-treatment before ginning. The same method applied to the other ranges shown in the diagram reveal similar results. That is, between 15/16 and 1⅛-inch, the pre-treated bale yields a 1.17 ratio, or 17 per cent more millable cotton than the regularly ginned bale. If the percentages in region "B" in the pre-treated bale, representing the four highest percentages, are compared with region "X" in the untreated bale, representing the highest percentages there, we find that this group is 1/16-inch lower than in the pre-treated bale, and the ratio is 1.10, or 10 per cent additional for the pre-treated bale. Region "A" is then "that region commercially identifying the staple of a given bale", because it is the region which a hand pull gives as the typical staple. The effective bulk of the bale, however, is the pull which is approximately 2/16-inch on either side of the highest percentage of staple available, or in this case, the region "C", including the following staple lengths: 1¼-inch, 1 3/16-inch, 1⅛-inch, 1 1/16-inch and 1-inch.

due to lack of ability of the mill preparation to take this foreshortened fiber as readily as it does that of the longer fiber for which it is adjusted. Any process, then, which would accomplish this combing or straightening of the "short" (curled) fibers would give not only a better staple diagram, but, as well, would present to the mill machinery a greater bulk suitable to its use. This is equivalent to saying, more millable cotton per bale.

For the benefit of those unfamiliar with the term "staple diagram" used in the previous paragraph, this is a carefully made combing which sets down in order all the various lengths of fiber found in a bale of cotton. From this it is possible to measure each of the actual lengths of fiber appearing and the proportion of each, so that the diagram gives a rating that is much finer and more representative of the cotton sample than a handpull of staple is, in that it shows not the *average staple*, but the *actual amount or proportion* of each separate staple length in each lot. This type of analysis shows up at once a proof of any increase in the number of fibers of the long group by such a



Staple distribution of three samples from same bale. Top, hand-pulled, Center, regular ginned, Bottom, ginned after pre-treatment.

combing action to straighten them, as described. It also shows very conclusively when a higher percentage of fibers of any given length are added, or rather *saved*, by a change in the method of processing two halves of the same lot of cotton.

For purposes of comparison we made these diagrams on three different bases, as follows:

1. Of staple pulled by hand from the seed. This is a tedious but very informing analysis because it is made certain that *no* staple is lost in this method.

2. From ordinary types of gins in operation in the various growing sections.

3. From a cleaning and opening treatment prior to ginning. In our tests the Murray-Hancock system of preparation and ginning was used. (In a later article we shall publish some percentage comparisons and experiences with this type of treatment, prior to ginning, and its special effect upon subsequent mill operations, with certain data which appeared incidental to this test. We shall confine ourselves in the present article to the ginning operations, as such, having in mind the statement of a man close to the situation in one of the southern states that, "Farmers in the state of ——— last year lost more than two million dollars in the value of their cotton, through improper ginning." Our findings would indicate that the statement is an extremely conservative one.)

Several illustrations are shown herewith to bring out the points raised. We took comparative ratings of this kind on "commercial inch" cotton, on what was sold as 1 1/16-inch, and "long staple" which pulled, by hand, as 1¼-inch staple. The differences in effective millable staple, under the various conditions of ginning, are made clearly evident by a study of the accompanying photographs, diagrams and tables.

What seems of infinitely greater importance, from the point of view of the mill man, is the fact that the millable cotton yielded as a result of treatment prior to ginning is clearly in excess, in quantity, over that ginned in the ordinary way, but it is more, it has a very high percentage of uniform staple delivered, and a low percentage of short staple or "tailings". This is the all-important thing in mill efficiency.

That the information in these diagrams, both photograph and plot, is directly translatable into mill results is found from the fact that in every case the net production of yarn is directly proportional to the main bulk of staple accumulation shown by the diagrams, and explained in Chart C herewith.

BAER SORTER DISTRIBUTION

Length in 32ths inches	Sample No. 380				Sample No. 410			
	Number of Bundles	Weight in Mgs.	Weight Per Cent	Cumulative Weight Per Cent	Number of Bundles	Weight in Mgs.	Weight Per Cent	Cumulative Weight Per Cent
1 3/8	1	.2	.24	100.00	1	.3	.40	99.96
1 11/32	1	2.6	3.10	99.76	1	1.0	1.33	99.56
1 1/4	1	3.7	4.41	96.66	1	2.6	3.46	98.23
1 9/32	1	6.0	7.15	92.25	1	3.0	3.99	94.77
1 1/8	1	8.5	10.13	85.10	1	4.2	5.59	90.78
1 7/32	1	7.6	9.06	74.97	1	7.5	9.98	85.19
1	1	7.5	8.94	65.91	1	6.2	8.25	75.21
31/32	1	7.5	8.94	56.97	1	5.8	7.72	66.96
7/8	1	6.0	7.15	48.03	1	5.8	7.72	59.24
29/32	1	5.1	6.08	40.88	1	5.2	6.92	51.52
3/4	1	5.0	5.96	34.80	1	5.0	6.66	44.60
23/32	1	3.2	3.81	28.84	1	4.1	5.46	37.94
5/8 & down	1	21.0	25.03	25.03	1	24.4	32.48	32.48
Totals	13	83.9	100.00		13	75.1	99.96	

Accompanying this article will be found the analysis figures of a typical case of this improvement in the ginning process—that of 1¼-inch staple cotton. In staple of this type it must be apparent that combed yarn operations will have a distinct advantage in the use of such increased bulk of cotton in the longer staples. Even a small additional bulk would be an advantage here, and the increase shown, in the effective range, is not small. Also, the accumulation or increase in percentage of millable staple, by this process, rises with the rise in staple length, hence for the combed yarn staple ranges, it would be most marked of all.

Determining *the* Strength *of the* Individual Cotton Fiber

A Tentative Method Applied in a Southern Mill Laboratory for Doing this Work Is Described

By Horace L. Pratt

THE day of haphazard methods of manufacturing in the textile industry has passed. The manufacturer who would best serve his customers and successfully meet competition. must not only keep the item of cost to a minimum, but must strive to determine in advance that his goods are going to meet the needs for which they are intended.

One of the properties of cotton is strength, and in many classes of goods made from cotton, the matter of strength is an important consideration. This is especially true of cordage, belting ducks, filter ducks, hose ducks, etc. But to wait until cotton has been spun into yarn, or possibly woven into cloth, or even in some cases until some of the goods have been rejected by the customer, before finding out that the strength is bad, is, to say the least, an economic waste.

With this in mind, numerous attempts have been made to test the strength of the fibers as they come from the bale. The cotton stapler draws a few fibers and snaps them by hand, classing the cotton as weak, strong, etc. The human equation in this method plays too great a part for accuracy to be assured. A machine for breaking the single fibers has been made, but among other disadvantages, it takes too much time, breaking the fibers singly, to make this method of practical value.

A number of mill laboratories have been working on this problem with varying degrees of success. The United States Department of Agriculture, Bureau of Agricultural Economics, in cooperation with the Clemson Agricultural College, has succeeded in developing a method that shows marked improvement over any yet employed. The laboratory of a southern cotton manufacturing organization has been assisting them in working out the details of this system, and testing its practicability.

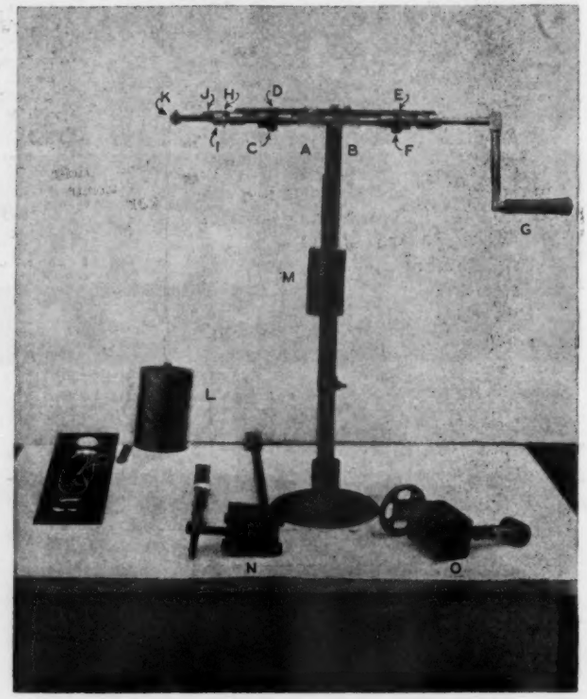


Fig. 1. The Testing Device. See text for explanation of reference letters. A detail of the head is shown in Fig. 3.

This method, in brief, consists in taking a bundle of fibers and combing them out as straight as possible. The bundle is placed in a wrapping device and condensed, by wrapping with thread, to a certain density,

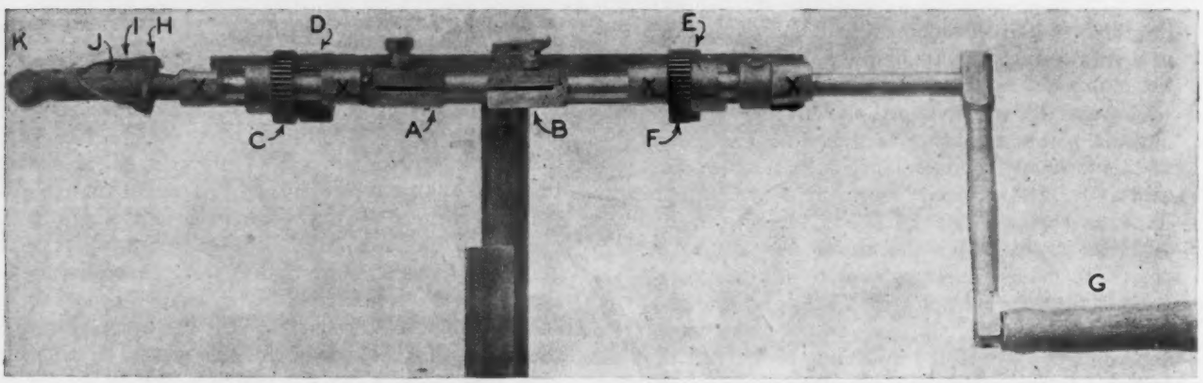


Fig. 3. Showing a close-up view of the wrapping head to make the details clearer. The bundle of fibers has been removed and the clamp A pulled back to the left as far as it will go. This gives a better view of the gears C and D. The bearings which support both the clamps A and B and the back shaft are marked X.

governed largely by weights. The circumference of the bundle is measured. The bundle of fibers is placed in special jaws of the ordinary skein-breaking machine and broken. By using a predetermined factor, the strength of the bundle, as recorded by the testing machine, is converted to that of the strength of one square inch of the cellulose content of the cotton, "about 90 per cent" (*Seydel*). By this method the bundles of fibers do not have to be of the same size, but it is essential that they be condensed to as nearly an equal density as possible, and that the moisture content be the same.

The wrapping device, Fig. 1, consists of an iron stand which supports the wrapping head and scale. The wrapping head (See Fig. 3 for details) consists of two jaws or clamps, *A* and *B;* gears *C, D, E, F;* handle *G;* weights *L* and *M* and pulley *K*. It will be noted that the gears *D* and *E* are fast to the shaft with the handle *G*. *D* meshes with *C*, which is fast to the clamp *A*, while *E* meshes with *F*, which is fast to the clamp *A*, while *E* meshes with *F*, which is fast to the clamp *B*. The gears are all of the same size, in this case, 40 teeth. The clamp *A* is capable of being moved horizontally, so either the gear *C* on the clamp or the gear *D* with which it meshes must be wide enough to allow the clamp to be moved without getting out of gear. The weight *L* is fastened to the clamp *A* by a wire passing over the pulley *K*. This is accomplished by having a plate *H* with a hole in it slipped over the outer end of the clamp and secured by a collar *I*. The plate carries a ring *J* to which is fastened the wire. In this way the clamp may be turned without twisting the wire. The weight *L*, acting through the movable clamp, tends to stretch the bundle of fibers and to keep them under the same tension during the process of winding. Another thing that must especially be noted is that both the clamps rotate in the same direction. The scale consists of a good rule placed in an oupright position near the center of the iron stand.

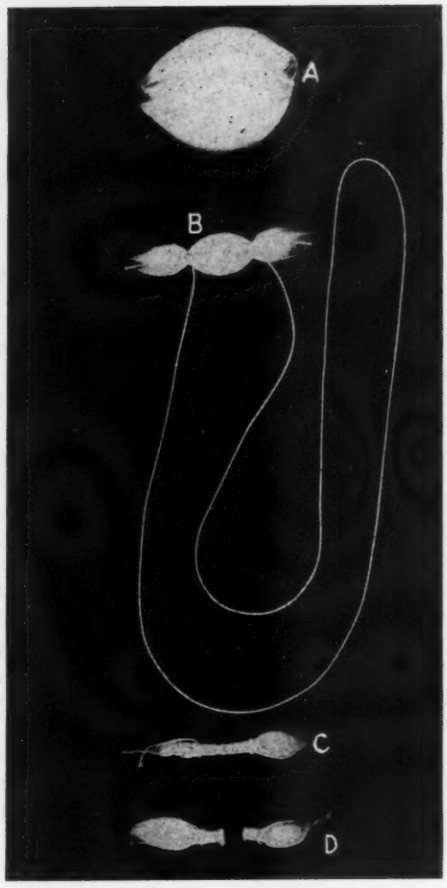


Fig. 2. Showing four stages in preparing fibers for testing.

Figure 2 shows the bundle of fibers during the several stages. *A* is the bundle after combing. *B* the bundle tied with thread ready to put in the machine. *C* is the bundle after wrapping. *D* shows the bundle after breaking. The bundle is tied, as in *B*, with about a number 20 sewing-thread, with a single knot, having a loop about nine inches long in which the weight *M* is suspended. The left weight *L* is raised and supported until the bundle has been placed in the clamps. The weight is then suspended, which stretches the fibers. The right weight *M* is suspended and the machine is ready for operation. The handle is revolved clockwise, until the threads approach within three-tenths of an inch of each other. The scale is read at the top of the weight *M*. The handle then turned for any number of turns and stopped in the same place as when making the first reading. The scale is again read at the top of the weight. The difference in the

	Circumference	Actual Break	Pounds per Square Inch of Cellulose
	.174	90	59,453
	.131	70	81,580
	.169	91	63,723
	.194	106	56,329
	.159	81	64,079
AV.	.165	88	65,033
		Test Number 1.	
	.162	96	73,159
	.150	82	72,888
	.185	105	61,358
	.172	90	60,843
	.187	110	62,912
AV.	.171	97	66,232
		Test Number 2.	
	.161	87	67,127
	.146	81	75,999
	.154	80	67,465
	.175	91	59,428
	.150	83	73,777
AV.	.157	84	68,759
		Test Number 3	
	.141	70	70,418
	.154	84	70,838
	.166	94	68,224
	.162	92	70,111
	.170	92	63,667
AV.	.159	86	68,652
		Test Number 4.	
	.187	102	58,337
	.182	106	64,001
	.169	95	66,524
	.150	92	81,777
	.165	96	70,523
AV.	.171	98	68,232
		Test Number 5.	
	.187	107	61,197
	.187	100	57,193
	.163	86	64,737
	.133	72	81,406
	.148	76	76,698
AV.	.164	88	68,246
		Test Number 6.	

These tables show the results of strength tests made on six different lots of cotton taken from as many sections of the cotton belt. Note that the strength is figured in pounds per square inch of cellulose, which gives a comparable basis of determination.

two readings divided by the number of turns gives approximately the circumference of the bundle. For convenience ten turns is commonly used. The wrapping is continued until the threads approach within 1/50th of an inch of each other, then the direction along the bundle is reversed. The handle is turned in the same direction but with the finger the threads are started back toward the outer ends. When the threads reach the clamps and start back, cut the threads off with about one-half inch projecting and remove from the machine. Twist the projecting ends with the loose fibers at each end of the bundle to prevent the threads unwinding.

Referring again to Fig. 1, *N* and *O* are the special jaws for the skein-breaking machine made to carry the bundles of fibers. Both the special jaws and the clamps on the wrapping device are padded with leather to prevent the metal from cutting the fibers and to assist in getting a better grip on them. When operating, the jaws of the breaking machine will be almost together, the longitudinal center of the bundle being between the two jaws. The break should occur with a snap. If it does not, this test should be rejected, as slippage has occurred. Bundles from .150- to .200-inch circumference give best results. After a proper break, the broken ends should appear even.

Tests under varying conditions have been made, but the best results, so far, have been obtained when the cotton is conditioned to 65 per cent relative humidity.

Weights of different sizes were employed, but the ones this laboratory has adopted as proving best are 10 pounds for the left weight and four pounds for the right weight. The constant given herewith was figured for these conditions.

Let S equal the strength of one square inch cellulose.

Let B equal the break in pounds of a given bundle.

Let C equal circumference of bundle in inches.

The constant for the foregoing conditions has been reckoned as 20.

The problem resolves itself into the following:

$$S = 20 \text{ times } \frac{B}{C^2}$$

Example:

$B = 174$ pounds

$C = .220$

$$20 \times \frac{174}{.220^2} = \frac{3480}{.048400} = 71{,}900 \text{ pounds} = (S)$$

The results of strength tests made on six different lots of cotton taken from as many sections of the cotton belt are shown in the accompanying tables. The tests were made on a Scott vertical machine, 600 pounds maximum capacity, with special made jaws, using a separation speed of 12 inches per minute. Broken under condition 65 per cent relative humidity.

It will be noted from these tests that in the averages there is only a difference of slightly more than five per cent between the highest and the lowest test. But in the individual bales a difference of over 30 per cent between highest and lowest break is shown.

In connection with tests for strength there also enters the question of drag. Cotton fibers in their mature state assume a twisted, tape-like formation. These convolutions cause the fibers to interlock, so to speak. The resistance to separation of the fibers in this matted and interlocked condition is known as drag. Tentative methods are now being worked out to test this important property of cotton. The questions of strength and drag go hand-in-hand, for the strength of the yarn not only depends upon the strength of the individual fibers of which it is composed, but also upon the resistance of the fibers to separation.

When the method for testing drag has been worked out, we feel that the best mechanical methods so far devised, for testing the cotton fibers before using, will have been accomplished.

Standard-Coosa-Thatcher and National Yarn Merge

ANNOUNCEMENT has been made of the merger of Standard-Coosa-Thatcher Co., with plants at Chattanooga, Tenn., and Piedmont, Ala., and the National Yarn & Processing Co., Rossville, Ga., with combined resources of over $10,000,000. No cash consideration was involved in the transaction, which was accomplished by stock exchange. The capital of the Standard-Coosa-Thatcher Company was increased through the issue of $1,250,000 preferred stock, making a total capital of the merged company $5,000,000 common stock and $1,250,000 preferred stock.

The organization under the new arrangement includes two spinning mills of approximately 60,000 spinning spindles each, producing a range of single and ply combed yarns from 8s to 120s; two mercerizing plants with a weekly capacity of 325,000 pounds; a modern well-equipped dye plant combining skein, package and warp methods, with a capacity of 100,000 pounds weekly; and facilities for dyeing and winding rayon, and the production of specialty yarns. The enlarged company will specialize in single and ply combed yarns, natural, mercerized, bleached and dyed; also dyed rayon and specialty yarns.

The nucleus of the Standard-Coosa-Thatcher Company was started about 36 years ago at Piedmont, Ala., by A. G. Thatcher, Jacob Barlow and W. Lane Verlenden. The original invested capital was $75,000, and in 1922 the Standard-Coosa-Thatcher Co. was formed with a capital of $5,000,000. The National Yarn & Processing Company was organized in 1924 by Tom McKinney and associates, and has enjoyed a steady and successful growth. Mr. McKinney, formerly president of the National Yarn & Processing Company, becomes vice-president and general manager of the new organization. The officers of the new company are: J. S. Verlenden, president; G. H. Miller, vice-president; R. J. Mathewson, vice-president; T. H. McKinney, vice-president and general manager; A. H. Thatcher, secretary; R. C. Thatcher, assistant general manager; and R. P. Clark, superintendent.

Come with Me, Comeling

By
Oliver G. Murphy
Superintendent, Shawmut Mill

Mr. Murphy is one of the leading operatating executives of the South who is recognized for his keen analytical ability of mill problems of manufacturing and personnel.

AFTER supper last night I drifted into my library and turning the dial of the radio, I hunted the air for an orchestra that was playing a type of music that would soothe tired nerves, for the day at the mill had been hard.

With my cigar in hand, I sat before the fire thinking of the different men I knew. Across the room my half-grown boy was busy with his school work. Silence reigned.

From the men I knew, my thoughts turned to the boy. I thought of the many lessons in life he must learn. The greatest perhaps being that of learning the ways of men. Another "Comeling"—a newcomer among us with life before him.

Without intending to do so, I broke the silence by speaking aloud the thoughts that passed through my mind.

"What did you say, Dad?"

Come with me, Comeling!

Yes, Son, lay aside your books and let us think together.

Thinking to the masses of men is an unknown experience, but an experience that would make them more valuable to themselves, to their families, their employees, their employer, their Country and God.

Come with me, Comeling—why did God create man? No one knows. We have our ideas about this, as we have about every mystery of life. But we do know, He intended man to be happy. You will note as you travel through life, that when the commands of God's are obeyed, man is happier. One of these commands is that by the sweat of his brow man should earn his bread; and when man obeys this order, he finds himself happier.

I believe, from observation, that for every man there is a vocation that is best suited to his peculiar talents. And to find this vocation, is the first task that comes to the young man. The tendency of men is to drift into their life's work. So many do not have an objective. They simply take the job that is open without any definite plans as to their future. If we are to be supremely happy in our work, we must love it. For if we love our work, our heart will be in it—all the energy of our being will be thrown into it, and we will be the success in life we should be.

It is from the drifting group the world gets its faultfinders, the blaming of others for their failures, the grouches, the pay-day and Sunday type, those lacking in the power to make decisions—a qualification that all men who succeed must have.

But with the power to make decisions must go something else that is just as important.

In the drifting group, we have men we will call "that's good enough, let it go."

Comeling, if it is not right it must not be let go. It must be as near right as it is possible to get it. One hundred per cent perfect is just about impossible to get; but the nearer you come to perfection, the higher you will stand above the masses around you. Aim at one hundred per cent, be entirely satisfied with nothing less. Praise where praise is due, but in dealing with yourself and other men never take the position that one hundred per cent has been reached unless it has, for so seldom is this done. It is absolutely necessary to be sure you are right in your position. For after perfection, there comes no advance—one has gained the top and there is nothing above to pull to.

From the ranks of the drifters come all the failures of the world. They go through life hungry for happiness; they pass into old age, still hungering, but in a dazed state, wondering why the world has treated them so.

Comeling, in the world of men there is another type that I

You and Your "Comelings."

A "COMELING," according to Webster, is "a newcomer; immigrant." Everyone, particularly mill operating executives, must deal with comelings in the mill business. These newcomers are most definitely influenced by the advice of the older ones in the game; their destinies often are guided by original conceptions of their earlier days of learning, when their minds are formative and their impulses plastic.

In this splendid little article, Mr. Murphy takes us home with him, informally, and we sit with him and one of these "comelings" for a few minutes—and get the frank and honest expressions of a working, matter-of-fact mill man concerning some of the proper perspectives and philosophies of life.—R.W.P.

would tell you of—it's the liar. You must learn to spot him. In the first place, he is unsafe to deal with, he cannot be trusted and he is never a strong man.

You should always surround yourself with men of ability but be sure they are also truthful and strong.

Business is based on confidence. No man can continue in a position of responsibility who has lost the confidence of his associates.

In dealing with employees the liar loses his place in the sun. He may be smooth and get by for a time, but sooner or later they will find him out and when they do, it is the exit for him. His usefulness is passed.

In your dealings with those over whom you may have authority, shun the appearance of a lie. Do not promise until you are ready to fulfill your promise. For, if for any reason you fail, your employees will make no excuses for you. In their heart of hearts, they will feel that you had not intended to fulfill your promise when you made it. Several instances like this and they will place you among the liar group.

Some men will tell you a liar cannot lie and look you straight in the eye. But I tell you some can. When a liar is under strain watch his hands, they are nervous. If in doubt press him hard, and watch his hands. Take that little tip from Dad, Son.

There is an old saying that "all men are different." but in some fundamentals they are the same. All men desire to be treated fairly. So strong is this characteristic that you can put over almost any proposition if you convince men you are fair, and that there will be no favoritism shown to any one in their respective group. To succeed in the handling of men a confidence in fairness must be built up, and nothing be allowed to shake this confidence at any time. Be true to your men always.

Any man making a request does not like to be refused. If you must refuse, state your reasons clearly. If your reasons are worthy you will seldom find your man displeased. He may and very likely will be disappointed, but he will see your position and will not leave you with resentment in his heart. On the other hand, if you grant his request you need not explain, he is satisfied and does not care how you arrive at your answer. And often is not interested in what it may have cost you to grant it.

The last thought, Comeling, brings to my mind the fact that men are organically selfish at heart.

If it were possible for you to listen to the thoughts of men you would hear the statements:—"What's in it for me—what do I get out of it?" In dealing with men never forget this basic characteristic.

There are some noble men in the world, who realizing this failing in the human family, have fought to reduce this trait in their own lives and we speak of them with our hats off, as unselfish men. But I doubt not that their unselfishness is only the result of a wonderful mastery over the flesh and the devil.

It strikes me that it is always wise to try and get the other fellow's viewpoint. It makes no difference whether he is your employee or your employer. In fact, it is of the greatest importance to try and see your job and your actions as they appear to your superior officer. You will save yourself a lot of trouble and be of greater value to your organization.

To be able mentally to place yourself in a position to get another's viewpoint you must first of all make a special study of your man, watch the positions he takes, note his reactions and listen when he talks with the purpose of learning his personal peculiar ideas on different questions that come up from time to time, even though these questions be foreign to business in hand.

Do not think for a moment, Comeling, that your superior officer is not studying you in the same way. That is, if he is a real manager of men. And he is if he has held a position long in a well managed organization. He is continually on the watch for Comelings, young men with ambitions, initiativeness, originality, carefulness, good judgment, truthfulness, loyalty and a wheelhorse for work—and I would not forget gameness in this list of requirements.

"What's the matter, Dad?"

Nothing, Son, I expect you had best get back to your work. We can talk again sometime.

My thoughts had wandered to the Comelings I had known in the cotton mill business, and who now have taken their places in the world of men.

Novelty Ponchos

"In those parts of South America where the climate ranges from temperate to cold, a very large proportion of the poor classes use ponchos in place of overcoats or raincoats, and, in fact, they are very serviceable garments. A poncho is merely an oblong blanket provided with a hole in the center for the head and falls loosely over the shoulders and down to the knees.

"It has many times occurred to me, and especially since the beginning of the craze for 'loud' raincoats, that ponchos, made of broad striped waterproofed cotton material, such as that used for awnings, could easily be popularized in this country, particularly among the younger sets in high school and college.

"If, say, at the next Tech-Georgia football game, the Tech boys could be supplied with ponchos made from a good waterproofed cotton material, dyed in the Tech colors, the fad could easily be started and considerable newspaper publicity would result from the introduction of such a novel garb. And to further carry out the idea, if on the same day, similar ponchos were supplied to the students of the University of Texas and the University of Tennessee—whose colors are the same as Tech's, I think—the plan could be started and popularized throughout the South.

"The 1927 World's Almanac lists over 600 colleges in this country, ranging from 50 to 33,000 students in each school, many having more than 5,000 students. The high school and 'flapper' population is even more numerous, so that the field for the expansion of this plan is probably in excess of five per cent of the country's population, and it is the crowd that follows its leader most readily."

The above suggestion, made by J. A. Hall, Jr., Bolling-Jones Bldg., Atlanta, Ga., was awarded the first prize of $500.00, in the recent New Uses for Cotton Contest conducted by the Cotton Manufacturers Association of Georgia in an effort to increase the use of cotton yarns and fabrics. Ten other prizes, of $50.00 each, were awarded. Some 1,500 suggestions were received, all of which were turned over to the New Uses Division of the Cotton-Textile Institute for investigation of the practicability and merits of each.

A Layman's View of the Textile Industry

Here are Some Things an Outsider Sees as the Major Problems of the Industry. He Condemns Night Work and Suggests Changes in Methods of Distribution as a Pressing and Necessary Step

INASMUCH as all of us are rather thin-skinned and frequently are made happy or sad by the expression of our friends, and as we profit oft-times by these opinions, it may not be amiss to portray graphically a layman's observations of some of the textile conditions obtaining in the South.

Someone, in commenting recently on the English mill situation, remarked that the Britains were suffering from over-capitalization and because of the fact that there were so many bonds and stocks outstanding, the industry was having difficulty to make earnings sufficient to pay dividends upon the outstanding bonds and stock; that in reality insofar as the bona-fide capital investment was concerned, the earnings would show greater than if the mills were not so heavily over-capitalized. Another criticism that the speaker made was the fact that there was such an abnormal overhead in these mills that it had a tendency to cut the earnings very unfavorably and that something had to be done to relieve these two conditions.

Are You Over-Capitalized?

As I sat and listened to these two statements, I wondered if such were true of the textile mills in the United States. I wondered still if such were true, what means could be employed to relieve this situation.

America is known for its high efficiency in industrial management and in production. During the past year groups of people from many foreign countries have come to our land to examine and study our methods. Our time and task studies, our automatic machinery, our highly efficient managerial staffs, have speeded up production and reduced costs and made unnecessary the employment of many people in various industries. The textile industry has not failed to participate in this great movement. So efficient have we become that in many lines there is an overproduction, or an under-consumption depending upon the point of view from which it is studied. The fact remains, however, that there are many goods manufactured, and the possibility of greater production, that at the present time are not consumed; thus it would seem that our efficiency is reacting economically on us.

This efficiency insofar as the textile mills are concerned, is largely individual, because each unit of the industry, in a large measure, acting upon its own initiative, guided by its own judgment and regardless of relationships to other units, or to the great social whole, is speeding along, as though it were the only driver on the race course.

Is Efficiency a Frankenstein?

With conditions as indicated in the foregoing paragraph, there has come a new idea necessary for success, and that is the idea of group consciousness. Already independent circles of action have over-reached those of their neighbors until they are interfering with each other, and out of this distorted relationship have come suspicion, enmity, desire to crush, and the barbaric idea of the survival of the fittest. It may not be good psychology to call these names so frankly, but oft-times the only way to get a man to take care of his physical body is to tell him bluntly the dreadful disease with which it is afflicted.

There is an external form of group consciousness. Groups meet here and there where common problems are discussed, and in which there seems to be a common understanding of economic problems, but out of this group each individual goes back to his home environment and oft-times becomes the same independent philosopher that he was before.

In discussing this subject of group consciousness I am not thinking of trusts and combines and agreements contrary to our social and legal thinking, but I am thinking of those great fundamental principles of economic life upon which all progress depends. There is in the industry a vision that has presented to the manufacturer the benefits of group consciousness, but there has not developed that desire on the part of the manufacturers to put forth group activity to secure these results, and it is needless to say that the results of group activity cannot be obtained otherwise.

From this statement it would seem that there is a bad psychology that pervades the industry. It is the psychology of pessimism, of looking backward rather than looking forward; of waiting for something to happen rather than going out and making something

happen; of being a creature of environment rather than making environment, of doubt rather than trust; of pulling apart rather than pulling together.

How About Distribution?

Such conditions as these can never bring progress or prosperity. Those days have passed forever and the only action that can bring ease of mind, ease of material conditions, and ease of social relationships is that of group determination. It will take a long time to attain much progress in this field because there are so many widely scattered units and so much varied thinking, but as difficult as the undertaking may seem and as long as it may take, it must be done, and it can be done and it will ultimately be done.

Perhaps no situation in the textile industry is so complex or so stagnant as the method of distributing textile products. It occurs to me in studying this phase of the industry that it has not kept pace with manufacturing and managerial methods. As I have studied the system rather superficially for the last few years, I have been unable to find much that is new that has developed in the distribution end of the industry. There have been certain innovations like accumulating and distributing information, and this is good, but what the mills want in addition to information on production and distribution are some new uses and some new outlets for its products. I suppose there are more different methods of distributing textile products than there are for the products of any other industry, and in this field there is that same psychology existing that prevails among the mills and there is that same lack of group consciousness; and there is in addition to this, in many instances, that cave-man idea that "I must take care of myself regardless of any one else." In my way of thinking, this is one of the weakest places in the textile industry, and one that perhaps needs readjustment more than any other.

Outside viewpoints are always refreshing. Very frequently they present a new angle upon some of our most intimate problems. Here is an unbiased picture of your industry as it looks to a rank outsider. The author is not associated with textile manufacturing, but his affairs give him a contact with various phases of the industry, upon which he bases these observations.

Much convention program time, and much printed space is consumed by cotton manufacturers in diagnosing their own problems. Here is a man, uninitiated into the mysteries of manufacturing and selling, who has given in this article some of the observations he has made, from the outside. How do his views compare with yours?

Manufacturing End Must Help.

The manufacturing end of the industry and the selling end are complementary adjuncts and they must work out these problems together. The selling and the production must bear a proper relation to each other. The selling agencies must realize that they have a greater interest in the mills than getting their commission and in periods of stress they must take into consideration the interests of the mills that they represent. The mills must not drive the selling agencies into practices that are harmful, not only to the industry but to the agencies as well. There are now groups of mills in the South that are poorly financed and are incapable of governing their acts, as they are controlled by their financial managers who oft-times are more powerful than the board of directors.

In working out a scheme of community thinking, it has been my observation as I have traveled here and there over the South for the last few years that the most destructive element to the development of group consciousness and group action is the night-run. I know that this is a very delicate question and one that admits of discussion from two points of view, but indications are that the night runs must go before any constructive plan of cooperation can be permanently effected. I do not mean that it must be eliminated by a stroke of the pen, or with the bat of an eye, but I do mean to say that the leaders in the industry must face this problem sooner or later, and that the night run must go for economic reasons.

The Night Run Again.

I am not attempting to discuss the merits of the case. I am simply issuing judgments gathered from many experienced opinions. I have been told by some of the best men in the industry that when cooperative action has been necessary the question of night-run always entered and destroyed the effectiveness of the plan. I therefore think the night-run should go for this reason, if for no other, and that reason is that it destroys cooperation in every other field of action. Not only is it necessary that night-run shall be eliminated, it is also necessary that insofar as the states of the South are concerned, there shall be some unanimity of opinion as to the day operations of the plants, because at the present time the laws of the various states vary. It may be that after the night-run is eliminated, this question will be the next one settled.

Legislation Is Not Necessary.

In discussing these two questions, it would be so much better for the mills if they could agree to put these principles into operation and to abide by them rather than to have laws passed forbidding these. I do not believe in legally enforced acts for broad-thinking men like the textile manufacturers. I really believe that there now exists a desire on the part of most of the manufacturers to put these principles into operation, but there is that awful destructive fear of whether or not the other fellow will keep his agreement. Personally, I believe they will, and I believe this would be the safest and best way to handle it.

As society has evolved, better living conditions—a factor of social evolution—have improved, and with this improvement there has come a desire on the part of the people to dress better, to wear better clothes and to have more clothes. Other industries making other commodities have sprung up, competing with the textile industry and in many instances have almost completely absorbed certain commodities that the cotton textile industry formerly supplied. In com-

(*Continued on page* 435.)

PACKAGE DYEING OF Sulphurs *in* Circulating Machines

By Harold Schroeder

Article Four

FOR the mill just starting on package dyeing, and for the plant experienced in it, Mr. Schroeder is giving some interesting discussions pertaining to various angles of the game. In this article he covers the use of sulphur colors in this type of equipment, and also goes somewhat extensively into the subject of these dyes themselves, so that his remarks will be of especial interest to all other dyers, in addition to those handling the package type of machine.

ALL of us have had the opportunity to read in text-books the statement, presumably true, that the first sulphur color was made by the fusion of sodium sulphide and sawdust. Many years have passed since that first successful experiment was made and the range of sulphur colors has been considerably extended during that time with gratifying gains in shade and fastness in the dyed goods.

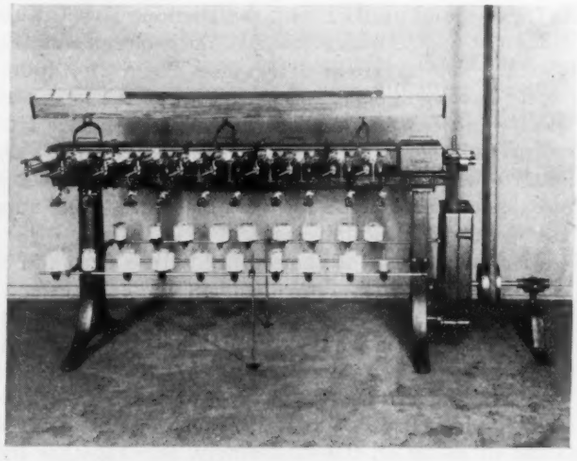
But no doubt many a dyer operating circulating machines, who has had to contend with sulphur colors, has had reason to wonder whether the march of progress so far as sulphur colors were concerned has been quite as thorough as with some other classes of dyes. Maybe in the old days they did use sawdust as one of the constituents of sulphur colors. Today after viewing some of the sulphur dyeings produced occasionally in circulating machines it looks as if sometimes instead of sawdust the dyestuff makers had used a mixture of brickdust and macadam!

In other words, when starting up the dyeing of sulphur colors in circulating machines it is scarcely possible to expect the same unfailing perfection which can be anticipated from other classes of dyes. It might be put another way: that sulphur colors are dyed in circulating machines because these colors have certain properties of fastness and cheapness which entirely outweigh the occasional dirtiness of the dyeings.

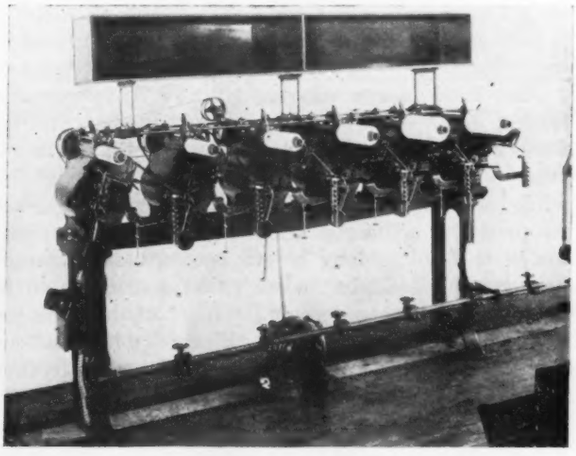
It is not that these colors dye unevenly. Usually after scouring mechanically, as would be done in any wet finishing operation, the apparent streakiness of the dyed yarn disappears, showing that there was present on the yarn excess dyestuff or else plain dirt. The problem of sulphur dyeing in these machines is much like that of the housewife, a never-ending struggle with dirt.

Sulphur colors are not, most of them, definite chemical compounds, any more so than a fried egg is. The best results in dyeing are almost always to be obtained with dyestuffs whose chemical nature is known to the very last double bond, or whatever it is that sticks the pieces together. This is not yet the case with sulphur colors; a sulphur brown, for example, as found in commerce is not usually a single definite chemical compound, singing a solo all by itself. More usually it is, so to speak, a mixed chorus, the members of which are variously affected by the heat and all very much under the influence of sodium sulphide.

It would seem, speaking generally, that there are two main classes of sulphur colors, those which when



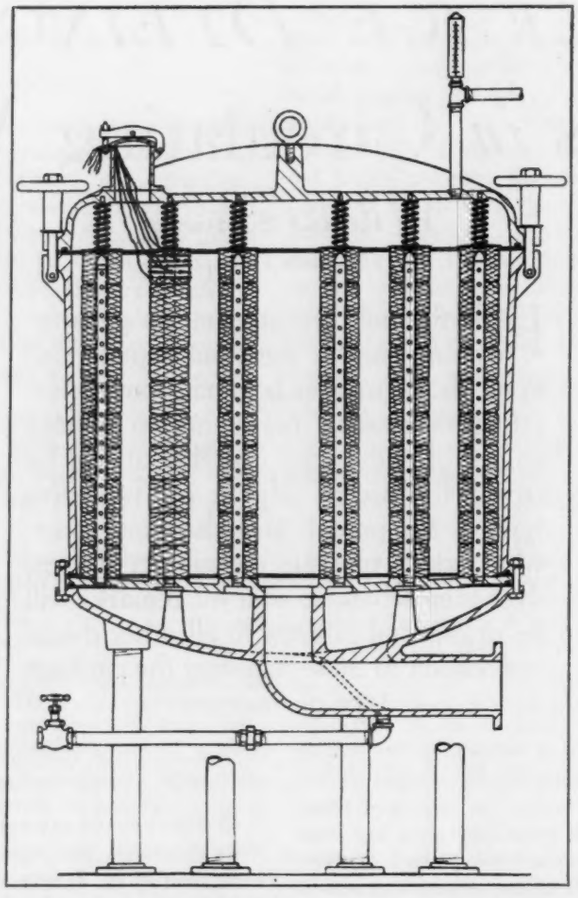
A No. 90 Universal filling winder equipped for winding filling yarn from 2¾-inch traverse dyeing packages onto weaving bobbins.



A No. 8, 8-inch traverse parallel tube Universal winder for handling coarse yarn. The machine shown is arranged for winding yarn from spinning bobbins onto dyeing tubes.

dissolved in sodium sulphide pass into a leuco or reduced form and those which do not pass into the leuco form and are sometimes known as direct dyeing sulphur colors. The leuco colors, with some exceptions, seem to give the better results in closed machines and the direct dyeing colors are liable to contain more objectionable impurities than the others.

Such a generalization is likely to be completely upset by a variation in the dyeing quality of different shipments of the same dye. To a dyer it looks as if some of the dye makers spent all their energies in getting a satisfactory yield of color and when they get it, heave a happy sigh of relief and yell for the shipping department.



Cross-section of Franklin machine, showing packages in place.

Because a sulphur color dyes well in a glass beaker is by no means any sort of a guarantee that it will operate as well in a closed machine. The fact that to all appearances the color is perfectly soluble in sodium sulphide should not necessarily give the dye a clean bill of health. Of course no commercial dyer can give a new dye as thorough a test as the manufacturer of the dye should give it.

It really seems as if dyers as a class are to blame for the small amount of precise information that the dyemakers are willing to dish out to us. In the past, dyers have been rather proud of the fact that they neither knew nor cared about anything highbrow. Any one quoting theoretical stuff in a dyehouse was apt to be in rather a worse situation than a voice crying in the wilderness. You can't hit a voice with a brick.

One good reason why, up till now dyehouses and theory, which is only a sad name for fundamental information, have been such strangers, is that until recently consumers of dyed yarn showed a delightful willingness to take what they were shipped and to ask no questions. Those times are passing very rapidly, and it will not be long before redyes, today accepted as inevitable, will be looked on as something to be avoided rather than accepted as part of the business.

To a closed machine dyer, thirsty for information, there is very little information available other than that which each may dig out for himself by expensive testing on the large scale, and which really does not get the industry ahead very fast.

The missing information about sulphur colors which it is believed would be of very great assistance to machine dyers and serve to eliminate much of the expensive large scale experimenting is the size of the molecule clumps in the solution of sulphur colors.

A good part of the variations in dyeing quality between different batches of the same dye could be explained by the molecules of the dye sometimes floating around in a single state, which would give good clean dyeings and at other times, ganging together like a crowd around a dog fight, in which case it will be seen that the clumps of dye would fall out of solution easier than if the molecules of dye were single. In fact it is possible to conceive of these dye clumps being so large that they are too large to penetrate cotton yarn. In that way some dirty dyeings could be explained.

It would seem to be asking too much of a dyer to have him squint through some sort of an X-ray machine at his dyebaths but such an occurrence would be no more novel than all this pH stuff which is being talked about so much. In fact this X-ray picture of the dyebath would to a closed machine dyer mean really more knowledge of the pH.

Let us for a moment desert the realms of sober fact and imagine that we have our machine set up so that we can see the molecules of our dyebath. The color which we are dyeing, in our imaginary dyebath, is for purposes of argument, say Diamine Fast Orange ER. We will probably see that the molecules of this dye are not all grouped together like a crowd in a movie but are in small groups, all about the same size, easily able to pass through the cellulose fiber. Now when we add our salt to the dyebath, we shall not likely see any great change in the size of the molecule groups but only that as the dyeing proceeds their number in the dyebath diminishes.

Now let us do the same thing with a dye that we know gives trouble, for example, Benzo Azurine, no matter who makes it, it is a dye that in deep shades has to be handled carefully. Making up our dyebath with this dye and again fixing up the presumable molecule-seeing machine, we will possibly see that when salt is added in large amounts that the molecules, instead of going on the yarn singly, join together into big bunches and then when these are big enough, fall

(*Continued on page* 437.)

There is PROFIT in Making *Full Packages*

By R. A. Soniaman

LIKE the full dinner pail, the story of which we have all read, the advantages of full packages in the textile industry are manifold. And, conversely, the disadvantages accruing from packages not filled to maximum capacity are too numerous to mention beyond the salient facts that there is an easily computable loss of money to the industry and a readily observed lowering of the quality.

By packages—which is a blanket term—is meant spools, cones, parallel tubes, beams, bobbins; in short, any of the various ways of putting up yarn.

To illustrate the inefficiency resulting from partly-filled spools, let us take the case of spools used to fill the creels of a warper. Let the sketch, *A*, Fig. 1, represent a spool filled to maximum size and *B*, a spool,

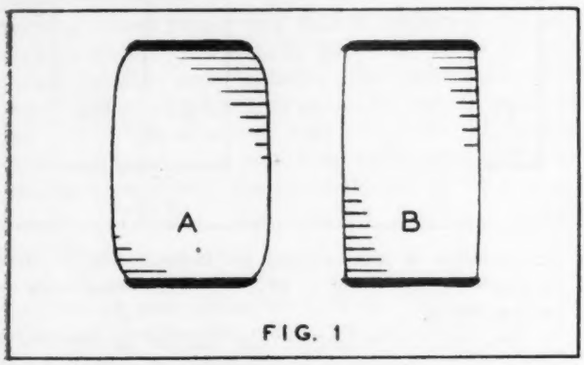


FIG. 1

say nearly seven-eighths full. Assume that the counts are 25s single, that the full spool has a net weight of two pounds of yarn, and that the undersize spool has one pound ten ounces of yarn; that is to say, a loss of six ounces.

Just what does this portend? Several things. In the first place it means more handling of the spools; and by requiring more handling it is evident that some one person or persons (if the plant is large) will have to move them about. Which means that the extra handling will have to be paid for—a needless expense. A fact that verifies our opening statement.

Let us cite a concrete and specific case. The spools filled to the proper maximum weigh 32 ounces net, the part full ones, 26 ounces. Suppose that the order involves 16,000 pounds. With spools weighing two pounds, 8,000 will be required; but if they weigh only 26 ounces 9,846 will be needed, that is, 1,846 more. To this number must also be added 1,846 empties which will also have to be handled; so that there is a total of 3,692 extra spools to handle.

To show the train of evils that follow the system of only part filling of spools it should be pointed out that the extra handling takes place at (a) the spoolers; (b) transportation; and (c) the warper. Furthermore, when spools are partly filled, it necessitates a larger stock of spools being kept on hand than would otherwise be the case if they were properly filled. Obviously, this means another needless expense, since money so tied up is not earning anything—in fact is diminishing gradually because of the inevitable depreciation of the spools through use, abuse, atmospheric conditions, theft, and so on.

Again, take a simple example from spinning. Assume that roving bobbins of a correct maximum of eight ounces are filled so that they only weigh six ounces net. This signifies that in every thousand pounds the comparison of piecings will be

2000 for the eight ounce bobbins
2666 for the six ounce bobbins

or roughly, 33 per cent more piecings in the latter case. Imagine what this entails in added work for the spinners and reduction in the quality of the product! Not to add loss of production!

The matter of piecings can be more easily visualized and evaluated, perhaps, by means of the comparative chart, Fig. 2. *A* indicates ten piecings from the proper size bobbin, and *B* shows the increase due

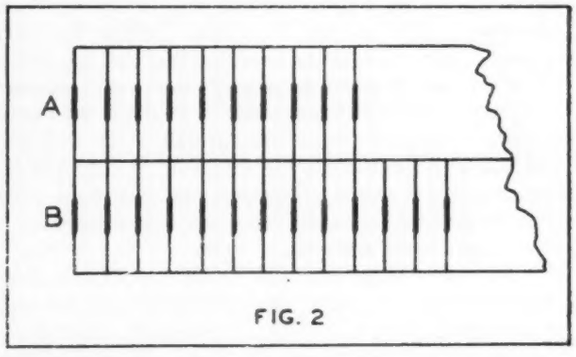


FIG. 2

to the smaller bobbins. When it is realized that piecings are often very serious faults, the full significance of filling packages to their maximum is better appreciated.

In the Spinning Room.

Another easily followed instance is that of spinning bobbins at the spoolers. Let's say 20s single on a 2-inch ring. Filled to the correct maximum, the bobbins net 2⅛ ounces; but for the purpose of illustration let it be assumed that they are only filled to net about 1¾ ounces per bobbin. The comparison of knots tied for a 1000 pounds is

for the 2⅛-ounce bobbins..... 7529
for the 1¾-ounce bobbins..... 9142

or roughly a 21 per cent increase in knots. The ef-

fect of this increase in knots on the quality of the product is easily imaginable.

And in Twisting.

In so simple an operation as twisting of ply yarns the evil of undersized bobbins can be easily observed. The sketch, Fig. 3, graphically portrays the loss of yardage which so seemingly an insignificant thing as too long a taper top on the bobbins may bring about. *A* represents a properly filled bobbin; whereas, *B* illustrates one whose taper top is too long, thereby entailing a not inconsiderable loss in yardage, taking a frame in its entirety.

Pirns or bobbins or quills used in filling magazines of automatic looms often suffer from the same trouble and of course there is the unavoidable extra handling again. Other evils follow, one of them being the tying up of money in the extra bobbins required. A further disadvantage is suffered by those firms whose expansion has brought them to feel the importance of every inch of available space. Naturally, the extra bobbins required will take up some space that could be devoted to more profitable use.

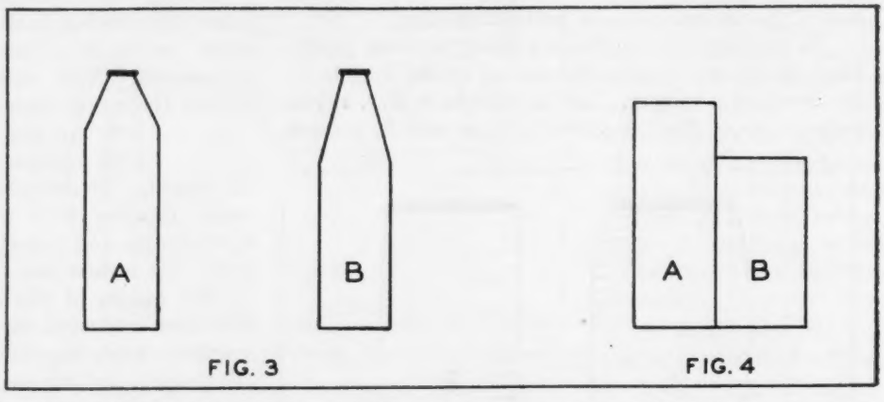


FIG. 3 FIG. 4

When we consider the effect of undersize packages in the matter of cones or parallel tubes the loss when calculated shows up somewhat spectacularly. Take a tube which could be filled to 6-inch diameter. Fill it only to 5-inch. What has taken place? This: a loss in yardage that is far greater than the comparative figures of five to six convey to the mind . This statement should be studied carefully by every executive who has parallel tubes in his establishment. Although the diameter is only 1/6 less, figuring about 17 per cent, the actual loss is something like 30 per cent because the volume varies not as the diameter but as the area.

Take a twisting machine full of 25s filled to 6-inch diameter, and another machine with parallel tubes filled only to 5-inch, and the difference in yardage may be shown by the cartogram, Fig. 4. *A* being the yardage per tube filled to 6-inch; *B*, the yardage when filled to 5-inch diameter. A considerable variation, is there not? And this clearly illustrates the advantage of filling the tubes to 6-inch, thereby decreasing the knots and the extraneous handling of the tubes. By decreasing the latter, more time will be at the disposal of the operative to look after the machines, consequently the quality will be better; or, it may even result in the worker being able to handle an extra side, thereby cutting the cost of manufacturing.

Granting that the benefits derived from making the various packages the maximum size consistent with good results are axiomatic, the matter of standardization of sizes will need going into. A survey should be made throughout the mill in connection with the filling of the bobbins, spools, cheeses, beams, and so on, and the results carefully recorded *as is*; i.e., not as they should be, or as someone says that they are supposed to be, but as they actually are. After tabulation, the results can be carefully analyzed and a plan of procedure outlined. It will surprise many officials who believe that they are well posted as to the affairs in the mill to note the actual sizes of the various units.

Sizes Must be Standardized.

Once the standard sizes have been settled upon, a typewritten copy should be given to every person in authority who is connected in some way with the handling of the packages and from such person the standards should be transmitted to the persons actually engaged in the filling, transportation, and emptying of the packages. By having all concerned know just what is what, there will be less possibility of offsizes going through undetected. Any discrepancy or differentiation in size should be immediately reported by those finding them so that corrective measures can be instituted.

Obviously, the largest size should be the one to strive for. Sometimes a slight alteration in the creels and fittings of the machines will enable an even larger package to be made than can be presently used. Naturally, this will be a decided improvement. This fact, that slight, inexpensive changes may often be made, should be borne in mind when setting standard sizes, and full advantage taken of every opportunity to increase the sizes. The questions that arise in such a consideration are

(1) Can a larger unit be made on the producing machine?
(2) Can a larger unit be handled at the subsequent machine?

So far we have been dealing mostly with diameters; but the term diameter can be misleading when it comes to the quantity of material on a package. For instance, two spools or parallel tubes are of exactly like diameter and length, of the same counts, and yet there may be a difference in the number of yards. The reason? Difference in density. A soft, spongy package will certainly not contain as many yards as a firmly built unit.

Here's a pointer well worth keeping in mind. It will eventually mean a saving of many dollars to have

the packages as firmly built as the quality of the yarn will permit—keeping in mind, also, that the packages must run out good on the next machine, too. A phase of density not always thought of, but which has an important bearing on the filling of packages (especially the slow traverse kind) is the speed of the traverse motion. As much as 15 to 20 minutes has been added to the filling time of warp wind bobbins by slowing up the speed of the ring-rail traverse.

Good Packages are Firm.

Care should be taken when a wide variation of counts is run on a certain frame to get the right speed of the ring-rail traverse for each particular count; and it is a good stunt to have a table of gears made up for the various counts and plies and twists that are expected to be run.

The density of the packages is also affected at will by the type of tension used. On certain winding machinery, for example, gravity disc tensions are used; and these should be checked up and a standard weight worked out for the various counts and plies—making them as heavy as can be consistently done, with good work as the goal. On spinning and twisting machinery, the weight of the traveler has an effect on the density of the yarn on the bobbins, and should receive careful consideration. Less doffing through longer running times means less doffers required, and less doffers means reduction in pay roll, which in turn means smaller manufacturing cost, which can then either go into profits or a reduction can be made in the cost to the consumer which will naturally result in an increased demand, which again will ultimately go into dividends to the stockholders. A most pleasing cycle of events. But enough! The thing is self-evident.

A good plan in the matter of standards is to work up running and filling times of the various types of packages, making due allowance, of course, for any unavoidable stoppages. Strict adherence to the evolved times should be insisted upon. But lest we forget, the matter of speed standards also goes hand in hand with running times and should be looked into when establishing standards for package sizes.

The most carefully evolved standard may be of as little use as a riddled water pail, if its provisions are not followed up. Therefore, once a standard has been set, compulsory observance of it must follow and any transgressions should receive immediate attention and repeated violations by the same person or persons should be made the subject of some form of punishment.

It is a wise practice to check up the sizes of the packages throughout the plant occasionally, keeping a record of the findings. Once this system of checking is instituted, workers will take care that they keep to the standard, because they know that they will be spoken to if there is any variation. If a bit of elaboration will help maintain the standard without increasing the cost of manufacturing or clerical work, the record of the checkup can be made out in duplicate or triplicate, and the interested executives furnished with a copy.

IT is by eternal vigilance in connection with the "little things" that many mill men turn possible confusion and no profits into satisfactory operation. Mr. Soniaman's contributions to COTTON deal mainly with the things which are perhaps less obvious than are the apparent major details of operation. But they are just as important, and while anyone will agree, in the main, with the logic of this article, and the importance of full packages, there must be many to whom his several illustrations herein will be a striking object lesson.

The overseer of the department where an infraction has occurred should be asked to explain how the variation took place and what will be done to prevent its happening again in the future. Workers are soon educated to the fact that the firm intends to have their packages made to the standard and they will, with a bit of regular following up, endeavor to conform to the rules.

In recapitulation it may be said: fill the packages, spools, tubes, bobbins, beams, no matter what the container is, to the practical maximum. However, go further into the matter by ascertaining whether an even larger package could not be used by slightly altering the creels, frames, or fittings of the machines. Many firms will be surprised at the immediate money saving and quality improvement that will follow the careful study and carrying out of the principle of maximum size packages.

Booklet on Automatic Pressure Control.

Trustworthy automatic pressure control is the subject of an informative bulletin just issued by the Fulton Sylphon Company, Knoxville, Tenn., as Bulletin P-100. How Sylphon pressure regulators have been used with profit and success by hundreds of manufacturers is demonstrated through actual installations described in the booklet; detailed descriptions are given of each instrument pictured, together with range of operation, prices and shipping weights. A double-page spread shows "How to Install Sylphon Pressure Regulators". In the bulletin the company emphasizes freedom from repairs and attention, long life, sensitiveness and flexibility of the all-metal elbows, etc., as the salient points of the equipment.

Parks-Cramer Adopt Duco Finish for Humidifiers.

Parks-Cramer Company, Fitchburg, Mass., announce the adoption of Duco finish for the casings of ParkSpray humidifiers. It is emphasized that this is only a change in appearance; and the company points out that polished copper, of which the humidifiers are made, tarnishes when exposed to moist atmospheric conditions, and that the Duco finish prevents this. For cleaning, it is explained, only an occasional wiping of the finish with a soft cloth, instead of polishing, is necessary.

Colored Fuses for Electric Light Circuits.

The Trico Fuse Manufacturing Company, Milwaukee, Wis., has placed on the market a new and practical color creation in plug fuses for electric light circuits. These fuses have colored tops, a color for every size. All fuses from 0 to six amperes, have a brown top, ten amperes are yellow, 15 amperes are blue, etc. The company states that this will enable contractors and inspectors to know the capacity of the fuse by the color.

Budget Control *in* Cotton Mills

A System of Budgeting Expenses and Costs Can be Made a Valuable Asset in Mill Operation, Regardless of Size

WE know there are many men, who in the past have been prone to pass up such discussions as this article presents, because of the subject matter. There still are those who feel that this kind of work is not germane to the operation of the plant—that it is a matter for the "office."

At the same time, we know of operating executives who are successfully applying the budget idea to mill operation—who deem it an invaluable aid. Because the new conditions are demanding every available measure of each of us, in keeping up with the March of Progress, we suggest a careful study of this mill man's argument for this idea. He is a mill man who presents the subject from the practical angle.—The Editor.

DURING a recent conversation with the agent of a small cotton mill the talk drifted around to the subject of budgets, and he said:

"Oh, yes, I believe in a budget in a big mill, with a production big enough to carry an overhead of a certified public accountant and several assistants who have nothing to do but make the budget work, but how can you install such a thing in the small mill with only a few men in the office force? Answer that if you can."

I accepted the challenge, and for about an hour and a half the battle waged back and forth, as we fought over each point. Finally he said:

"I think you win, but we have covered so darned much territory that I'm not sure of all your points. Will you put it in writing sometime?"

I found that he was really in earnest, and so I agreed to write up the main points of our talk, and what follows is, to the best of my memory, the most important points of our conversation concerning this interesting subject:

A budget is a statement of allowed expenditures for a given period of time. It is used as a check against actual expenditures for a like period of time. This is a definition from a control viewpoint which is the most common one in the business world of today.

Today the manufacturer wants to know what should be done if his plant is to make money, as well as knowing what has been done after it is all over. The old system of taking the total receipts and dividing by the total pounds of production, and calling the resultant figure an average cost per pound, is a system that is gone forever.

A mill man told me the other day that he had always paid his stockholders ten per cent, without the help of any newfangled ideas. His statement is absolutely true, but could he not have also made that ten per cent come up to twenty per cent, had more money for upkeep of property, paid his operatives just a little better than could his competitors and turned out the best quality of goods, if he had had the help of the budget, and some other "newfangled" notions? In other words, he got by nicely without having a scientific knowledge of why it all happened.

The man with the budget control knows what he is allowed to spend to keep within a predetermined figure and what he must do to meet expenditures in the future.

There are several kinds of budget controls, some of them very simple, and others much more complicated, taking up the figures on a basis of theoretical production. I shall only take up the simple budget control in this article.

We will presuppose a small mill, spinning a warp and filling for a staple cloth for which there is a fairly constant market. In other words, the mill has long runs on two or three kinds of raw stock, yarns and cloths. I am taking a simple case because it is much easier to get the fundamental ideas across. It may be extended after first principles are understood to any degree that may be required.

DATE_____

DIRECT LABOR STANDARD

_____ PER CENT CAPACITY

POUNDS	YARN SIZE	OCCUPATION	UNITS PER OPERATIVE	UNITS REQUIRED	OPERATIVES REQUIRED	WAGE PER OPERATIVE	TOTAL WAGE	COST PER POUND

FIG 1

The first thing to do will be to see from how many points we will be able to apply budget control. We find the following:

1st, Direct Labor; 2nd, Indirect Labor; 3rd, Supplies; 4th, Repairs and Maintenance; 5th, Waste.

Some one is sure to raise the question of "Why not raw stock?" Generally speaking, the superintendent has very little to say about the raw material. He is given so much raw stock and expected to produce a certain amount of yarn or cloth of a given quality. If the raw stock is a little below grade why, "A good man can raise his quality at least one point." Therefore, why worry about something over which you can have no control.

I will now take up each one of the five subjects in the foregoing, and explain what I can about it. Right here, I want to say that for a start, your figures may be way off, but as time goes on, with each readjustment you will see that the standards are straightening themselves out and that the budget figures are showing up very nicely with the standard.

Direct Labor.

Labor is probably paid either a day wage or by some form of piece rate. You must make up your mind just what jobs you are going to call direct labor and what jobs you wish to classify as indirect labor. Give this enough consideration so that you cannot be talked into some other viewpoint by someone who sees the subject from a different angle. I am purposely passing up this part of the subject, as I have fought it out many times before, and, after all, a mill can run and make money whether it calls its card strippers and doffers direct or indirect labor. Only make up your mind how it is going to be in your mill; stick to it and then go ahead.

A production figure must next be worked up. It may be 50, 75, 90 or 100 per cent of the mill's capacity, depending on the prospects of business for some time to come. Some mills have budget standards worked out on various percentages of capacity. Against each production schedule is posted the amount of direct labor necessary for that production. Each item of labor is now reduced to a cost per pound basis and the various elements of direct labor added together give the total cost either for each operation or each department.

It is always well to make a list of each kind of direct labor and the number of operatives employed in each operation or department, in making up the standard figures, a sheet for this purpose might carry headings as given in Fig. 1.

It will be seen from our form, Fig. 1, that having determined the amount of production based on a certain percentage of capacity and yarn size, it is necessary to list the different direct labor operations needful to complete the work in a department. The units per operative and units required to get out the requisite production are of course well known figures to any mill superintendent or cost department. The operatives required, wages per operative, total wage (for each class of work) and the cost per pound are easily worked out. Adding all the items together as shown in the cost per pound column, we find the total cost for a given department, and thus find the budget standard cost.

As the actual payroll figures of direct labor are assembled each week and divided by the total room production, the resultant figure is an actual cost per pound. This cost per pound should be compared with the standard and the gain or loss per pound determined. That figure is multiplied by the total pounds produced and the final figure of comparison is the total gain or loss in dollars. Losses should always be shown in red ink.

The overseer of each department should be asked to explain each red ink figure to his superintendent.

Red ink in the direct labor column may be accounted for in several ways. Let us take a spinning department as an example. Production may be low due to doffers taking a much greater time to doff than has been allowed in the standard; frames may be shut down waiting for roving, spinning bobbins or repairs. If the direct labor is kept in and paid while these shut-downs occur, it will surely show up in red ink.

SPINNING ROOM STANDARD SUPPLIES PER WEEK

NO. OF ARTICLES USED	ARTICLE	UNIT COST	TOTAL COST IN DOLLARS	YARN PRODUCTION IN POUNDS	PRODUCTION COST PER LB. OF YARN
COL. 1	COL. 2	COL. 3	COL. 4	COL. 5	COL. 6
	BROOMS				
	MILL CRAYONS				
	SPINNING BANDING				
TOTAL COST PER POUND FOR SUPPLIES					

FIG. 2

Indirect Labor.

This item of course, includes all labor not placed in the direct labor group. It should include every one from second hands down, that are not included in the other classification.

The preparation of the figures for indirect labor are carried on in the same manner as for direct, listing first the total production; then each job and the wages paid and the number of operatives on each class of work. Continuing the extensions, one finally comes to the total indirect labor cost per pound. A comparison of actual and standard figures give results in either red or black ink.

Indirect labor will show red figures or a loss whenever production is cut down without a corresponding reduction in this item. Supposing a superintendent orders a shut-down for a day. An overseer thinks that as he has several friends working for him who really need the money, it would be a good time to have painted walls and windows cleaned, or some other brightening up done. No doubt he is absolutely right, and it is a proper time to do that particular job, *but it will* show up in red ink when figured out in the budget control for indirect labor, and the overseer should conduct his department so that all red ink

losses can be justified and explained when called before his superintendent. As a silent policeman, the little red ink figure in the budget book is as good as I have found anywhere.

All departments have a standard made up as outlined for both direct and indirect labor. There will be very little trouble or variation in the direct labor if the standards are carefully set, even though there may be some variation in production requirements. The less day pay, and the more some form of incentive wage system is used, the closer the items will check out.

The indirect labor is where the red ink will show up, as we are all reluctant to cause an operative to lose his job or even a day's pay, if we can find any reasonable way around it. Additional help, outside of that provided for in the budget standards, cannot be taken into a department without showing up red on the budget control the very first week.

Of course there will be some opposition to any system that ties things down in such a hard-and-fast manner, but in the end, everyone, even those who at first fought the hardest against it, will appreciate its value as an aid in lowering costs.

DEPARTMENT_____
WEEKLY SUMMARY OF GAIN OR LOSS

WEEK ENDING	TOTAL		PRODUCTION	MECHANICAL		WASTE		LABOR				CHARGE BACKS	SPECIAL ITEMS	NOTES OR REMARKS
								DIRECT		INDIRECT				
	GAIN	LOSS		GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS			

FIG. 3

Supplies.

Here is where the office force will have to do some digging back into old records, and the better shape the records are in, the easier and more accurate the work will be. It will be necessary to go over the supply requisitions for a period of at least six months, or better yet, a year, and make a list of all the articles, with their value, that were used in each department during the period selected.

When the totals for each department are obtained for the period, they should be reduced to a weekly basis, somewhat as is shown in the form, Fig. 2.

Now just a word of explanation of each column in this form. Column 1 gives the number of units of each article that the department is allowed per week. Column 2 gives the names of the different articles. Column 3 gives the cost of the article from requisitions, bills or other sources, including all freight delivery and handling charges. Column 4 is the total cost of each different article per week. Column 5 is the production figure selected to represent either full time production of the mill or a production equal to market conditions that may be estimated for the future. Column 6 is Column 4 divided by Column 5. This column added gives the total cost per pound for supplies.

After the budget control is established, if the daily supply requisitions are entered promptly on a well-arranged supply record sheet, it is a very short job to accumulate the supplies cost per pound for comparison with the standard figure.

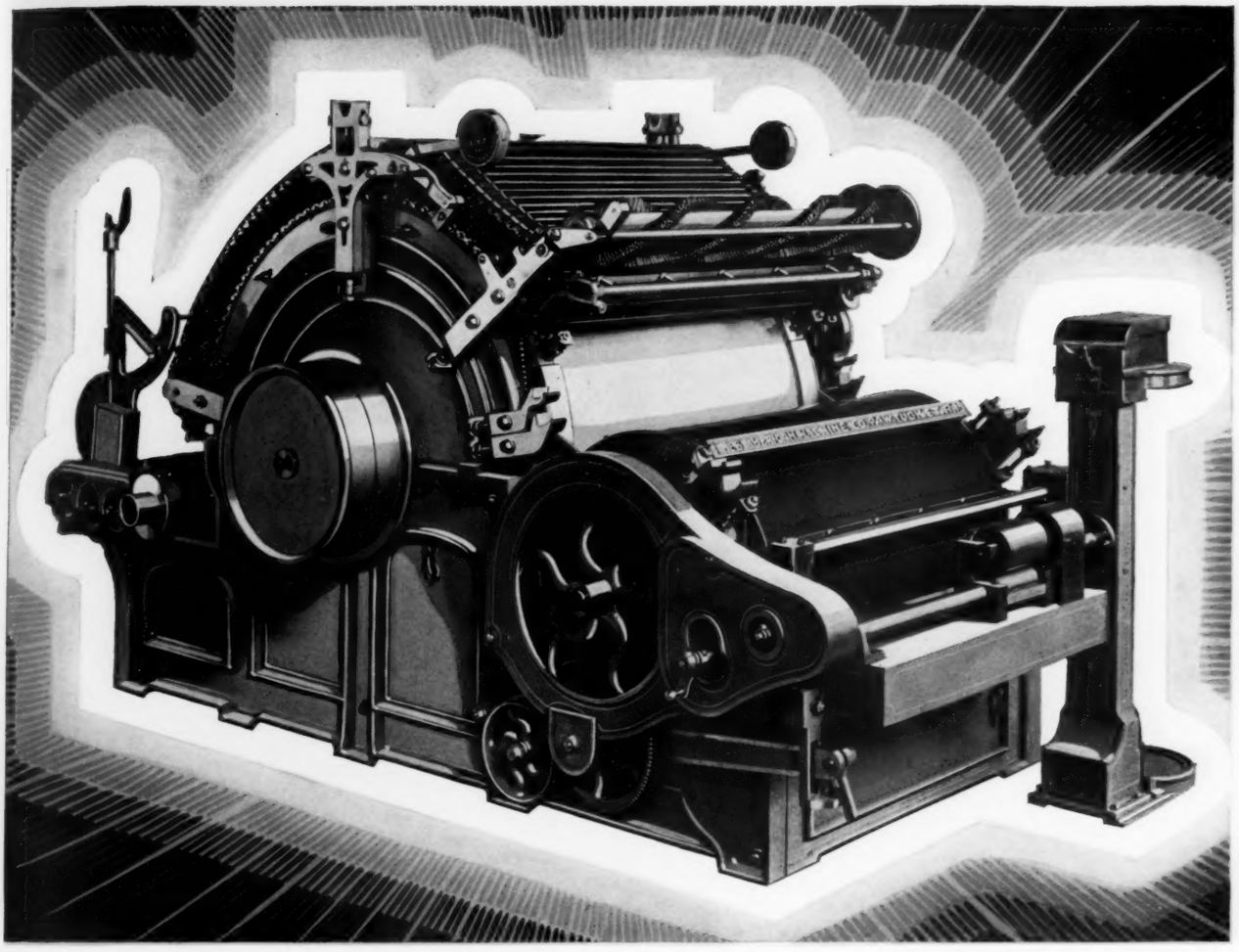
There are some supplies that cannot be taken into the department every week, but when taken, represent more than a week's allowance and will throw the figure into red ink.

A source of argument is presented here between the superintendent and the overseer of the department unless this side of the question is clearly explained and thoroughly understood. After all, one week's figure by itself is of very little value except as an indication of the way things are going, but a month's average will be of value in showing true conditions.

Some mill men will now bring up the question, "Why make up weekly figures if they are really not as good or as true as they seem?" The value of the weekly figure is in the promptness with which a condition—it may be correct or incorrect; allowable or not allowable—is brought to the attention of the proper authorities. If figures are accumulated once a month, it is very difficult to remember back three or four weeks and to state accurately the cause or reason for red ink figures. Most of us can remember what happened last week if we get the week's figures promptly. It will be noticed that the overseers will be making little notes of conditions that are out of the ordinary in order to be able to justify any extra expenses that may occur. This is the correct attitude for them to take, as a red ink figure caused by an unusual condition may be properly explained and discounted.

Another point comes up here, and that is, the promptness with which weekly figures are given out. The previous week's figures should be ready by Thursday, or as much earlier as possible. Weekly figures that are three or four weeks old when first seen, lose much of their force and value.

(*Continued on page* 427.)



THE ACE OF CARDS

Points of Superiority

- Rigid Bend, mathematically correct at all stages of wear of the wire.
- Perfect concentricity of Flats to Cylinder. Cylinder Pedestals are adjustable.
- Arrangement for adjusting Flats whereby accuracy to the thousandth part of an inch is obtained.
- Better quality of yarn made from the same cotton, or equally good yarn made from cheaper cotton.
- Patent method of securing Clothing to the Flats, neatest, cleanest and most effective.
- Patent Top Flat Grinding Arrangement for grinding from the working seating of the Flats.
- Patent Flat Stripping Motion which insures perfect stripping without damage to the Clothing on the Flats.
- Back Bends or Circles for supporting Flats and preventing sagging and stretching of chains.

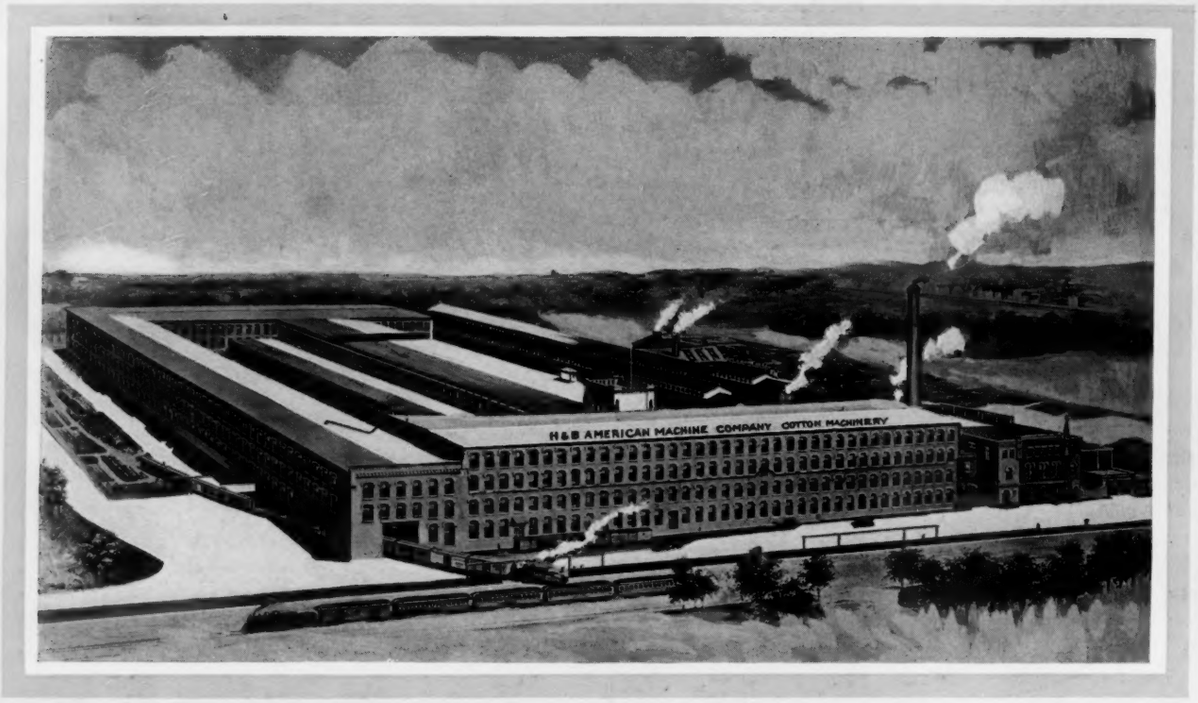
Performance figures, specifications and names of users gladly sent upon request.

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

Southern Office: 814-816 ATLANTA TRUST CO. BLDG., ATLANTA, GA.

BUILDERS OF COTTON PREPARATORY AND SPINNING MACHINERY



WHAT H & B EXPERIENCE IN SOLVING COTTON PROCESSING PROBLEMS MEANS TO YOU

WHEN you buy a machine made by this organization, you get more than metal—more than a piece of machinery. You get a device that has been perfected for performing a particular operation, one that has back of it the combined experience of engineers who have spent their lives developing cotton preparatory and spinning machinery.

Our creed is "not how cheap but how good can we build H & B Machinery." Every machine reflects this ideal. We are proud of our long association with the Textile Industry and the reputation we have achieved for the quality of our products.

We are always ready to help solve your cotton processing problems.

H & B PREPARATORY AND SPINNING MACHINERY

HOPPER BALE OPENERS · CRIGHTON OPENERS · EXHAUST OPENERS
BUCKLEY OPENERS · ROVING WASTE OPENERS · SELF FEEDING OPENERS
FEEDERS · COTTON CONVEYING SYSTEMS · INTERMEDIATE AND FINISHER
LAPPERS · REVOLVING FLAT CARDS · DRAWING FRAMES (WITH MECHANICAL
OR ELECTRIC STOP MOTION) · SLUBBING—INTERMEDIATE AND ROVING
FRAMES · SPINNING FRAMES AND TWISTERS—(BAND OR TAPE DRIVEN)
SPINDLES—FLYERS—RINGS—FLUTED ROLLS

H & B AMERICAN MACHINE CO., PAWTUCKET, R. I.

Printed in U. S. A.

CURRENT TOPICS

Cults, Fashions and Consumption

A DRAMATIC CONTROVERSY anent an advertising practice rages between a big producer in one industry and all producers in a group of other industries. The big producer, in national advertising on a big scale, urges the consumer to use his product, a tobacco one, as a sort of substitute for products of producers of candies, confections and other sweets. These last protest and are endeavoring to organize a countering campaign. All of the affected articles are peculiarly amenable to modern "selling" practices.

It used to be assumed that only articles of the luxury or semi-luxury kind called for high-pressure selling tactics. Necessaries, it was assumed, sold themselves, at least insofar as producers were concerned. Consumption of such things as food and clothing rose and fell, it was thought, only with ability to buy.

Conditions, rather recent, in this country have made much change in the bases of consumption. It used to be that a large proportion of the consuming public, even in this land of high average well-being, was underfed—even in the calory sense—much of the time through restricted capacity to buy. A still larger portion was underclothed, though this factor is not exactly measurable. Good general conditions usually meant increased per capita consumption of the "necessary" kinds of food and clothing. But the prosperity of recent years appears to have operated the other way in those respects. Per capita consumption of food and clothing "necessaries" seems to have receded; it certainly has not advanced with the consumption of "luxury" products.

This is due in some extent to the fact that recent prosperity was added onto a state of general well-being probably higher already than at any time previously. It followed or accompanied widely promoted cults anent many old-fashioned necessaries, notably food, and extreme changes of fashion as to others, notably women's clothing. Fifteen years ago the dietary sharps were stressing calories. Lately they have been warring on mere calories and stressing vitamines. Fifteen years ago the health propagandists urged the wearing of all the clothing possible; now they move towards a cult of nakedness.

Meantime, producers of "luxuries" built up a vast technique and practice of high-pressure selling, large via costly "popular" and merely suggestive advertising. Many of them were thus prepared to ride the crest of cults, and of unusual prosperity in many populous quarters, and of fashion changes. They are not satisfied with vast increases in consumption of many of their products. Increase in per capita absorption of such things as cigarettes and sweets has been enormous in the last fifteen years. This increase has impeded, in some cases actually caused decrease, of per capita consumption of "necessaries". In much extent the consuming public lately has practiced the philosophy expressed by Oscar Wilde when he said, "Give me the luxuries and let the necessaries go."

In fighting for some of each other's amplified space in the consumer's budget the so-called luxury products produce bitter combats, which in the end may break the strengthened hold of all. They may thus break the spell that was put on the consumer by high pressure selling and ingenious advertising.

This should be good for the plodding "necessaries," which have not been in position to use the high pressure weapons of the "luxuries" in battling for a place in the consuming sun. It is doubtful if it would be wise to attempt to use those weapons on behalf of "necessaries". For in most part the weapons are fallacious and untrustworthy. Smart-Aleckry never lasts long in business or in life.

Producers of "necessaries", such as staple food and clothing products, can be sure that their goods always will be wanted in huge quantities. They may be reasonably sure that, however consumers chase fitful cults and fashions, we all come back ultimately to those continuing realities in which are consumptive necessaries. It should be possible, however, for producers of the so-called "necessaries" to show the public that their products have "luxury" equations. Think of what could be done, via skillful advertising, for old-fashioned southern corn pone, now hard to get outside of a dwindling few southern homes. Much could be done similarly for many "ordinary" clothing materials. What is prettier, for example, than a well-made gingham dress, or neater or more comfortable than a man's suit made out of either of several kinds of cotton goods?

Cotton Fabric Versus Jute Burlap

COMPLETE replacement of cotton fabrics for jute burlap would increase the consumption of American cotton in the United States by approximately one million bales annually, according to Leavelle McCampbell, cotton manufacturer and selling agent of New York.

Heavy cotton fabrics and burlap, woven from jute, are used extensively for such purposes as bags and bagging and upholstering. For its supply of jute and jute burlap the United States depends almost entirely on India. Consumption of jute burlap in the United States has steadily increased to an estimated use of 125 million yards in 1928.

Four types of standard cotton goods—single filling duck, osnaburg, narrow drills and narrow sheeting—are directly affected by the substitution of jute burlap for cotton. Many well informed men believe that this continued substitution has added directly to the difficulties of certain branches of the cotton textile industry during recent years. Production of these four standard cotton cloths in 1928 amounted to 976 million yards, a figure well below the annual shipment of jute burlap from Calcutta to North America since 1922.

We Go to "War" for Shipping

WHEN the Federal Government, through the Shipping Board, took an operating hand in a contest between an American and a British shipping company a precedent pregnant of big possibilities was set. The Cunard Line, British owned, put a large passenger vessel into New York-Havana service for the mid-Winter season only. This meant the depriving of American lines, maintaining all-year operations, of much profitable tourist business, to which they look, in Winter, largely for yearly profits. The Ward Line, which for a half century has maintained steady operations between North Atlantic ports of the United States and Havana, was most affected. This line recently was brought within the governmental-aid program set up by the Jones-White Act. This relationship puts it directly under the protective wing of the Federal Government. The Shipping Board has contributed the services of one of its best passenger vessels for defeating competition by a Cunard vessel, which in size and speed is superior to all other ships in the particular service. The cost is met from a special fund of $10,000,000 set up by Congress for dealing with such situations. It is a "fighting" fund and its use puts the Government directly into a sort of carrying "war". Threats to make use of the fund in other quarters have been made.

The Shipping Board's contention is that this country has the right to demand that the major part of carrying to and from its ports be done in American vessels. Freedom of the seas, however, is supported by laws, treaties and custom to the extent that vessels of other countries must be admitted to our ports on the same terms that apply to American vessels which, in return, get like treatment at ports abroad. The aim and use of the "fighting fund" is the getting around of that state of comity between nations. "Your ships can come into our ports as ours go into yours without penalty," says the Government, in effect, "but if you try to take business away from American vessels, the Treasury will be drawn on without limit in seeing that you don't get away with it."

Such a position and policy is not without merit, especially in cases where, as in the New York-Havana instance, foreign companies only try to skim the cream from peculiarly American lanes of traffic. Whether it will lead to genuine improvement in shipping facilities is a matter of much doubt. It is an annulment of the law of competition, which is the best test of merit. The policy, if applied fully, would mean that American shippers in foreign trade would have of avail only such facilities as the Government would permit, support or provide. The lessons of experience show that these would be inferior to ones produced in the long run by free competition.

The New York-Havana incident illustrates the age-old theorem that government will not tolerate rivalry or even competition. It tends to show also that governmental aid programs like that set going by the Jones-White shipping act lead in the direction of outright governmental control if not complete government ownership.

It is worth noting that the British Government resorts to no tactics like that of ours in the present instance in the support of British shipowners. American or any other foreign vessels may engage in carrying of any kind at any time between ports even of the British Isles. This isn't because of British unselfishness; it is because the Britons learned, from long experience, that policies of that kind were the best support that could be given their own shipping,—which, largely because of such open and liberal policies, dominates the oceans.

The Tariff and News Values

THE Ways and Means Committee of the United States House of Representatives began hearings early in the year with the view of a prospective revising of the laws affecting imports of goods. Practically everything produced and consumed in the United States is involved. Congress' final action, according to persons taking part in the hearings, will affect prices, sales, production, wages, employment in practically all the industries of the country. The dollar-and-cents interest of practically every producer, consumer and investor is thus, in some measure, involved.

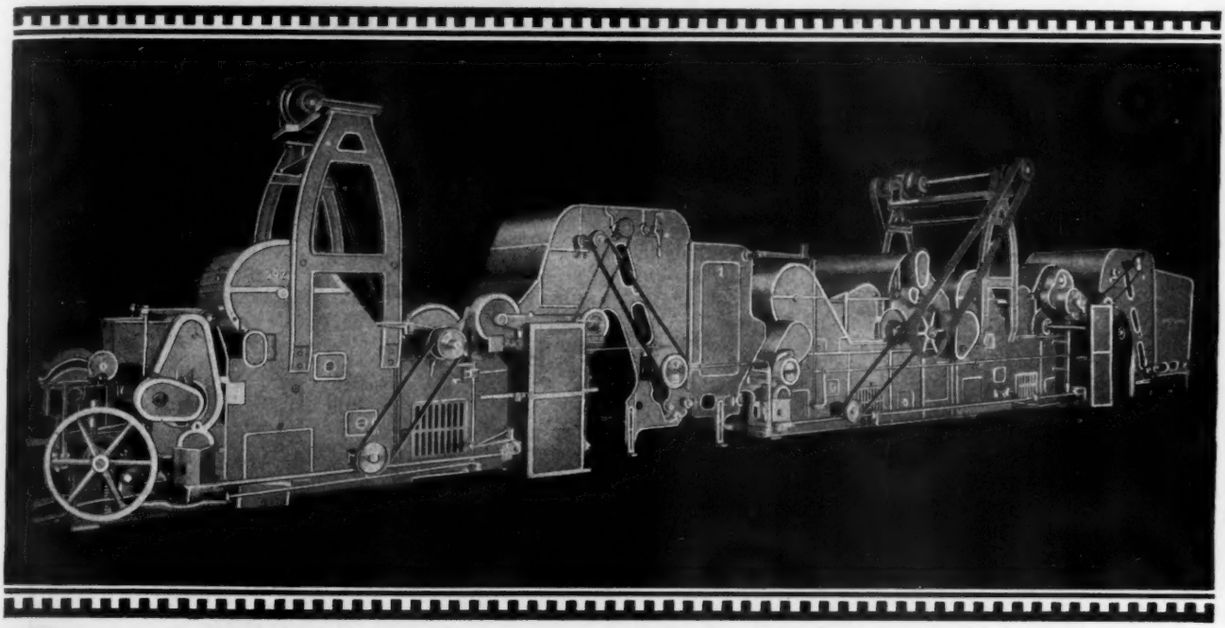
Yet apparently there is almost no public interest in the subject. Most newspapers have practically ignored the hearings. Even the reports of daily publications as are put out for the business public only have been far from complete, amounting to not much more than what first-class general newspapers used to give tariff hearings.

Why is this? Is it because when they are prosperous people have no interest in things that may make or unmake prosperity? It is contended authentically at the hearings that many industries, and with them large groups of the population, that are affected by tariff duties, are not sharing in the national prosperity. Is public apathy due to an unconscious public conviction that, after all, tariffs have little to do with public well-being? There is evidence that a good many industrialists feel that way about it. Nobody appeared at the hearings on behalf of more than a majority of articles covered in each of several schedules in the present law. Many of the persons appearing on behalf of various products seemed to be there merely through force of habit, or because of fanciful rather than clearly wrought opinions as to what tariffs can or may do.

Most of the requests were for insuperable tariff walls around home markets. There was little discussion, at least not early in the hearings, of markets for American products abroad. Yet expansion of producing facilities, beyond the apparent need of the domestic market, is a premise on which many appeals for greater protection are based.

Indications are that the House Committee will recommend materially higher duties on most products, and the committee no doubt will endeavor to have many articles now on the free list made dutiable. Higher or new duties on raw materials are apt to offset increases given many finished products.

Better Laps - Lower Costs



One process picker with synchronised control

THE success of Saco-Lowell's new One Process Picker with Synchronized Control is phenomenal. From all parts of the country facts and figures are pouring in proving conclusively that these machines are producing better laps at materially lower costs. Practically all of the new opening rooms being equipped by Saco-Lowell call for One Process Picking exclusively. The number of laps lost are not only much less than two or three process picking, but are unbelievably small.

IMPORTANT:—It is not always necessary to purchase new machines to obtain the advantages of One Process Picking. If your present Saco-Lowell pickers are reasonably up-to-date, they can be fitted with Synchronized Control, Intermediate Feeders, and certain other parts with a minimum added investment. This is so small that no mill should overlook this opportunity to increase its operating efficiency. Counting those already in operation and those orders now on our books, we have sold over Sixty One Process Pickers, a few of the installations being listed below:—

The Anniston Mfg. Company — Langley Mills — Chicopee Mfg. Company
Exeter Mfg. Company — Pacific Mills — Athens Mfg. Company
Dana Warp Mills — Boott Mills — Brandon Mills
Berkshire Cotton Mills — Ninety-Six Cotton Mills
Roxboro Cotton Mills — Greenwood Cotton Mills
Roanoke Mills Company — Alice Mfg. Company
Oconee Mills — Saxon Mills
Aragon-Baldwin Cotton Mills
Lanett Mills

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 Milk Street, BOSTON, MASS.

CHARLOTTE, N. C. GREENVILLE, S. C. ATLANTA, GA.

What the Southern Mills are Doing

A NEW picker room, approximately 80x70 feet, has been added to the Anniston Mfg. Company, Anniston, Ala. It was erected by Gallivan Construction Co., and J. E. Sirrine & Co., Greenville, S. C., were the engineers. Six Saco-Lowell one-process pickers have been installed on the second floor, and it is understood that looms will be installed later on the first floor. This addition is in line with a policy of machinery replacement which the company has been carrying out for several years.

Anniston Cordage Co., Anniston, Ala., has erected a 52x90 foot addition to be used at present for storage, machinery to be installed later.

The group insurance program covering the employees of Southern Mills Corp., Oxford, Ala., has been enlarged by the addition of $100,000 of life insurance, an increase in sick and non-occupational benefits, and the inclusion of more than $150,000 of accidental death and dismemberment protection. The contract is underwritten by the Metropolitan Life Insurance Company, on a basis whereby the employer shares the cost with the employees.

Exposition Cotton Mills, Atlanta, Ga., has installed two Woonsocket napping machines for processing goods they manufacture which require this treatment.

Meritas Mills, Columbus, Ga., are reported to be overhauling their napping department and erecting a building to house the machinery.

A one-story addition, 132x149 feet, is being erected at the Unity Spinning Mills, LaGrange, Ga.

American Chatillon Corporation, now erecting a rayon manufacturing plant at Rome, Ga., has let construction contract for 100 houses in the village. These houses will be four- and five-room buildings, made of solid Du-Brik, a hard burned hollow clay product. Each house will have an enclosed porch and cement sidewalk, flower garden, shrubbery, etc. All of the streets in the village will be concrete, with concerte sidewalks and curbing. A community center for the recreation of employees will also be established. The village, when finished, will consist of more than 350 houses with stores, community center, churches, schoolhouse, etc. Lockwood, Greene, Engineers, are the architects and engineers.

The group insurance program of the Standard Cotton Mills, Cedartown, Ga., has been expanded to provide employees with triple protection including $350,000 of life insurance, and more than $375,000 accidental death and dismemberment insurance and sick and non-occupational accident benefits. The mill and its employees share the cost on a cooperative plan, which is underwritten by the Metropolitan Life Insurance Co.

The Tabardrey Mfg. Co., of which Sidney S. Paine is president and Herman Cone treasurer, has acquired the old Holt-Granite Cotton Mill at Haw River, N. C., which has been idle for about two years. A three-story addition is being made to one of the two buildings, the other being remodeled. Carding equipment from the Nonquitt Spinning Co., New Bedford, Mass., will be installed in the addition, and the plant will be placed in operation as quickly as possible. J. E. Sirrine & Company are the engineers.

Pickett Cotton Mills, High Point, N. C., are installing new cards in a two-story, 30x130 foot addition recently erected.

Hart Cotton Mills, Tarboro, N. C., have installed 700 new Draper automatic looms, together with other equipment.

Troy Cotton Mills, Troy, N. C., were recently acquired by a corporation known as Wilbur Cotton Mills, Inc., headed by New York interests. Milton Ensor is southern representative and manager of the plant, which, it is understood, will be enlarged materially.

D. E. Rhyne, of Lincolnton, N. C., and W. H. Belk, of Charlotte, have purchased the Henry River Manufacturing Company, which was sold at auction.

It is reported that an addition will be made to the Neely-Travora Mills, Inc., York, S. C., and that a number of houses will be added to the village.

Six new houses are being erected at the Kendall Mills, Inc., Paw Creek, N. C.

Long Spinning Co. has been organized to take over the John Rudisill Mfg. Co., Lincolnton, N. C.

LaFrance Textile Industries, Inc., Autun, S. C., are establishing two dyehouses at their plant which was formerly the Pendleton Mfg. Co. One will be two stories, 53x131 feet; the other one story, 50x85 feet.

It is announced that 38 new houses will be built at the Kendall Mills, Inc., Edgefield, S. C., to accommodate a night force which will be started.

Work is progressing on the addition to the Aragon-Baldwin Mills, Inc., Chester, S. C., where machinery is being rearranged. J. E. Sirrine & Company are the engineers.

Character Products Co., Salisbury, N. C., has been formed by C. H. Deal, and will produce "Character" cloth. C. H. Deal is the organizer.

The addition to the Stowe Thread Co., Belmont, N. C., will be placed in operation shortly. The addition will be 133x307 feet, and will contain 6,500 spindles for producing combed yarns.

A building has been erected by the Maginnis Cotton Mills, New Orleans, La., to house the overall department of the company. It is three stories, of brick construction.

A 60-loom silk ribbon mill will be established at Crossville, Tenn., by Miesch Manufacturing Co., of Paterson, N. J., of which John C. Welwood is president.

COTTON COMMENT

By H. & B. Beer--

New Orleans, January 19th. 1929.

EXCEPT for the temporary decline in early January, due to liquidation, the market ruled comparatively steady during the past month. In fact values bulged sharply at times, only to recede moderately as a result of realizing, finals for the period showing no appreciable change as to near positions and Middling, and while July is about $1.00 per bale lower than one month ago (December 15th), October, new crop, is about $1.25 per bale higher.

December returns, as to textiles and domestic consumption, were rather disappointing, attributed to a smaller number of working days than in November, but this feature of the situation was offset by the continuance of free exports from the United States and improvement in the spot demand in the South.

ASSOCIATION OF COTTON TEXTILE MERCHANTS STATISTICS.

Yards—	December 1928	December 1927
Production	279,207,000	372,042,000
Sales	225,189,000	374,581,000
Shipments	276,098,000	328,076,000
Stocks	391,743,000	336,501,000
Unfilled orders	468,861,000	386,726,000

It will be noted that while stocks at the close of December were larger than on the corresponding date last season, unfilled orders were larger. By the close of January last season unfilled orders dropped to 313,893,000 yards, and stocks increased to 367,223,000 yards. It is possible that returns for January of this year will make a better showing by comparison with returns for January last year.

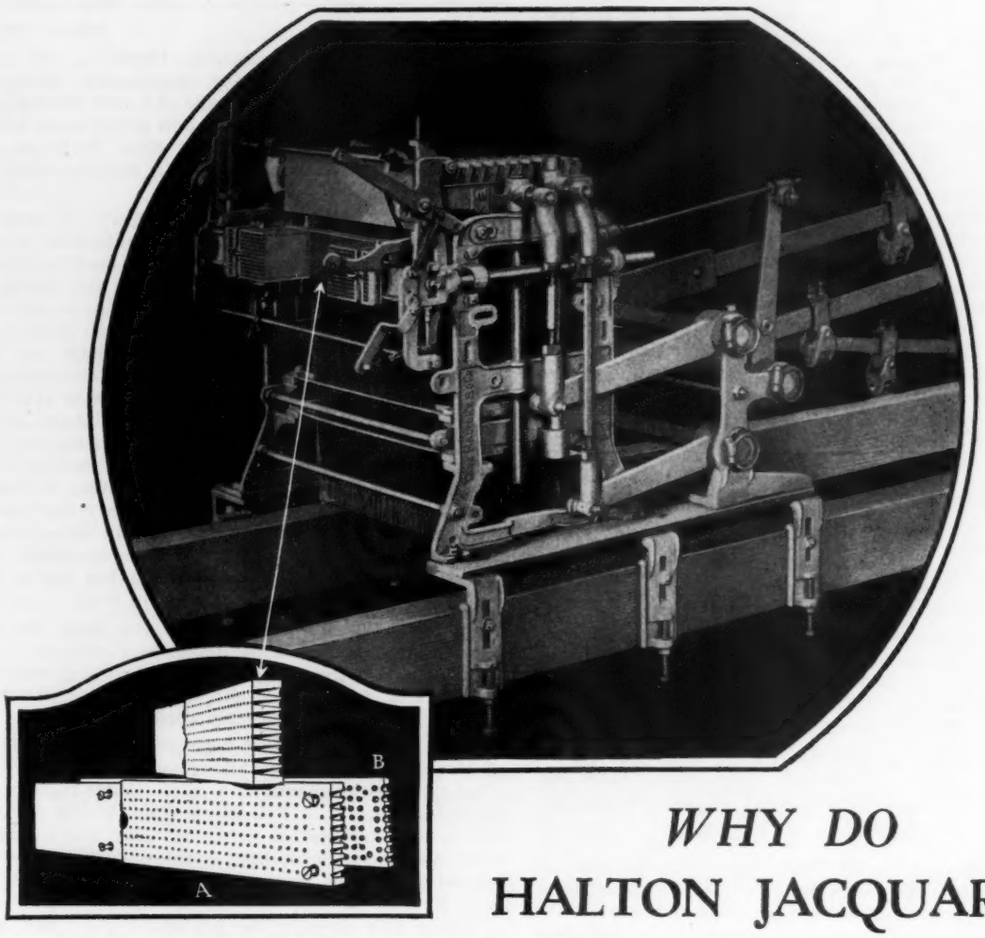
December returns as to domestic consumption of lint cotton showed that 534,352 bales were consumed in the United States last month versus 538,786 for the corresponding month last season.

CENSUS REPORT

United States—Bales—	This season	Last season
Consumption, including linters, Dec...	593,907	592,544
Consumption, including linters, 5 mos.	3,123,918	3,390,953
Mill stocks, December 31st	1,740,892	1,708,538
Stocks in public storage, Dec. 31st...	5,315,411	5,655,574
Pub. stg. and mill stocks Dec. 31st..	7,056,303	7,364,112
Active spindles during December	30,622,172	31,722,276

As noted by the accompanying table, stocks in public storage and in American mills at the close of December

A SERIES OF ADVERTISEMENTS SPOTLIGHTING 1 SPECIAL FEATURES OF HALTON JACQUARDS



WHY DO HALTON JACQUARDS *HAVE A DOUBLE NEEDLE BOARD?*

BECAUSE, in cleaning, the front section (A) can be removed from the back section (B) and the needles will not drop out of the needle board, thus facilitating the work of the fixer.

Thomas Halton's Sons, throughout their 53 years of experience, have originated or introduced into this country every successful departure from the ordinary Single Lift Machine. Performance and durability guarantee satisfaction for all textile manufacturers who require delicacy and accuracy of design.

THOMAS HALTON'S SONS

Mascher St. Below Oxford, Phila., Pa.

See Also *Consolidated Textile Catalogue.*

Selling Agent
H. A. Forbes
P. O. Box 1663, Paterson, N. J.
Telephone Lambert 8592-W

Southern Representative
Fred H. White
304-8 Independence Bldg.
Charlotte, N. C.

• A HALTON JACQUARD FOR EVERY DESIGN AND PURPOSE •

were smaller than on the corresponding date last season, while December consumption, including linters, was slightly larger than for December last season.

To January 18th the South marketed 12,459,005 bales compared with 11,246,282 bales to even date last season, or 1,213,000 bales more than one year ago. Nevertheless the stock at all United States ports and at the 102 counted interior towns yesterday, according to Secretary Hester's report, was smaller than on corresponding date last season; at the ports 2,314,000 bales versus 2,412,000, and at the counted towns 1,466,000 against 1,536,000. The smaller stocks are due to American mill takings and large shipments from America, the much larger crop than last season notwithstanding.

Compared with last season, exports from the United States to January 18th were 5,306,009 bales against 4,330,183 to the corresponding date last season, or 975,826 bales more than to the same date last year, and as exports from the United States for the whole of last season totaled 7,830,408 bales ,exports are now running on a basis, for the whole of this season, of 8,806,234 bales, with prospects on the excess over last year expanding as the season grows older, making it possible for shipments from the United States to approximate 9,000,000 bales this season versus 7,830,408 bales last season.

WORLD SPINNERS' TAKINGS OF AMERICAN COTTON TO JANUARY 18th.

Bales—	This season	Last season
North and Canada	1,036,000	1,138,000
South	3,426,000	3,247,000
Foreign spinners	4,291,000	4,239,000
World	8,753,000	8,624,000

In view of the better spot demand than at this time last year, and the continuance of liberal exports from the United States, indications are that world spinners takings of American cotton, perhaps week by week, are likely to run larger than after this time last season.

WORLD'S VISIBLE SUPPLY OF COTTON JANUARY 18th.

Bales—	This year	Last year
American	6,053,587	6,071,018
Other kinds	2,029,000	1,623,000
All kinds	8,082,587	7,694,018

As to the outlook for the next cotton crop, private advices from the interior are to the effect that little has been done so far in preparing the soil, that there will probably be no increase in the acreage in the eastern belt, but some increase in the acreage is expected west of the Mississippi River, and that prospects are for a smaller use of fertilizer in the eastern belt than last year. Texas, however, has, so far, a good season in the ground.

Trade With Argentina

THE people of Argentina, the most progressive of Latin-American countries, are much wrought up about a tendency in this country to curb importing of their products. Argentina beef is practically excluded. So is Argentina alfalfa seed. Now it is demanded that Argentina corn and flaxseed be excluded by prohibitive tariffs. These are Argentina's principal items of exports. If all are shut out, how is Argentina to pay for big purchases in the United States? These consist in most part of manufactured goods. Of the nearly $40,000,000 worth of United States textiles going to South America, Argentina takes about 40 per cent. American mills sent more than $5,000,000 worth of manufactured cotton goods to that country in 1927. Argentina's purchases of semi-manufactured cotton goods from the United States were worth about as much. A $10,000,000 trade item of one industry with a foreign country is not to be sneezed at. It is not likely to survive as a one-way item.

New England Mill Situation.

January 15th, 1929.

AN IMPORTANT development indicating the trend of Homer Loring's plan for consolidation in the cotton goods industry was the disclosure of a new charter granted to the Arkwright Corporation of Fall River which has taken over the Arkwright Mill in that city. It is one of the broadest charters ever granted to a Massachusetts textile plant.

It provides that the Arkwright Corp. of Fall River, Mass., is empowered "to buy, sell, manufacture, work, prepare, treat and in all ways handle and deal in cotton, silk and other textile fabrics of all kinds, and cotton, linen, silk, wool and other threads and raw materials entering into the composition of textile fabrics of all kinds; to manufacture, buy, sell, and in all ways handle and deal in garments and other articles of use, wear or ornament into which the manufacture of silk, cotton or other fabrics enter in whole or in part; to provide, own, maintain, sell, lease, mortgage, convey, improve and in all ways use and operate factories, buildings, machinery, equipment, works and facilities generally for the manufacturing, selling, working, preparing, treating, handling and dealing in cotton and other textile fabrics, the threads, parts, and raw material thereof, and the articles, whether of use, wear or ornament, into the production of which such cotton or other textile fabrics, threads or other raw materials enter in whole or in part."

Much of the old machinery in the plant has already been replaced and it is the intention eventually to install new combers and card equipment and all automatic looms. The work is being rushed and it is hoped to put the plant into full operation at an early date.

Such broad powers have been given before in the history of Massachusetts incorporations but they have applied to other than textile plants as a rule. Under the old form of incorporation of the Fall River Iron Works Co., for example, that corporation could not only operate mills but could operate steamship lines or railroads, in fact, it was the beginning of what is now known as the Fall River Line from New York.

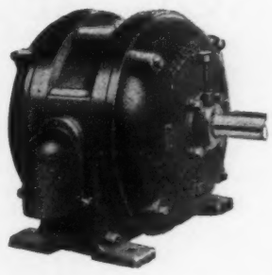
Under this charter the Arkwright Corp. can not only operate finishing plants of all kinds but it will be soon that it is distinctly provided that it may enter the garment field in any direction as the corporation can handle silks, woolens, linen or other materials than cotton cloth. It is believed that the immediate purpose of the company is to engage in the manufacture of curtain and other interior decorative materials that can be sold through the organization of converting houses now owned and operated by the United Merchants and Manufacturers, Inc., which is the name by which the Loring merger is officially known in New York.

The completion of the Arkwright deal is regarded at Fall River as outlining pretty clearly what may be done there with other mills that are virtually in the hands of the Consolidated Bank interests, holding mill paper. Many of the plants owing money to the bank have been surveyed by engineers engaged by Mr. Loring but nothing further has developed to show which of the plants will be taken in. New flotations of stock are anticipated to take over any of these plants and in the meantime the work of consolidating the mercantile activities at the New York end of the business is being done through the Cohn-Hall-Marx and the re-organized Seneca Corporations.

There are several instances where New York converting organizations dealing with New England and southern mills are consolidating their interests and a much more intensive competition for business is forecast. In Fall River there is a distinct disposition manifested to strengthen the individuality of plants that are now likely to go into the Loring merger and that are not dependent upon banks for their operation or support.

(*Continued on page* 443.)

TEXACO—"For Dependable and Economical Lubrication"—TEXACO



Oiling them *Regularly* is *NOT* enough!

While it is true that all electric motors used in the Textile industry are designed to lubricate their wearing surfaces automatically, too many of us are inclined to take their effective lubrication for granted.

Not that the necessity for lubrication isn't appreciated by most operators—but often it is felt that this involves only the addition of "some oil" now and then.

This is a mistake; and in the Textile industry especially, where the electric motor is exposed to dust, dirt and cotton refuse, is a serious mistake.

And, conditions being what they are, it is absolutely necessary (in securing efficient and economical operation) that attention be given to the construction of the bearings involved, the types of lubricants best suited, and the extent to which parts should be cleaned and fresh oils and greases applied.

Abuse or neglect will be certain to result in abnormal power consumption and high production costs, and one of the surest ways to avoid trouble is to use lubricants which are best suited for the conditions prevailing.

These lubricants, The Texas Company is in position to offer you: TEXACO oils and greases which have been carefully prepared and tested—and proven to be uniformly dependable.

In fact, TEXACO lubricants for electric motors are used in many of the most efficiently operated textile mills in the country today—and throughout the world.

We shall be glad at all times, to answer any question relating to the use and most economical application of electric motor lubricants (or any other lubricants); and we would thank you to address inquiries to the address below.

Our exceptional delivery facilities assure the prompt handling of any order, no matter how small or how large, anywhere and everywhere.

TEXACO
TEXTILE LUBRICANTS

THE TEXAS COMPANY
Texaco Petroleum Products
Dept. C2, 17 Battery Place, New York City
OFFICES IN PRINCIPAL CITIES

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

M. A. (Jack) Gordy has been made district manager of the United States Electrical Tool Company, of Cincinnati, Ohio, with headquarters in the Norris Building, Atlanta, Ga. He will represent the company in the southeastern states in connection with the drills, grinders, ucts manufac- and other products manufactured by them. For several years he has handled a number of lines as manufacturers' agent, including U. S. products, and will now devote his time exclusively to the sales and service work on this line, cooperating with jobbers and working closer with users. This Atlanta office is one of several new ones established recently by the U. S. Electrical Tool Co.

L. P. Duncan has become superintendent of the Inman Mills, Inman, S. C. For several years Mr. Duncan has been connected with the Pelzer Mfg. Co., Pelzer, S. C. Carl R. Harris, now superintendent at Cooleemee, N. C., was formerly assistant superintendent at Inman with J. A. Chapman, Jr., as vice-president and superintendent. The Chapman interests recently acquired the Riverdale Mills, at Enoree, S. C., of which Mr. Chapman also has charge, and while he retains direction of Inman, also, Mr. Duncan has been made superintendent of that plant.

M. R. Harden, who for the past two years has been assistant superintendent of the Delgado Mills, Wilmington, N. C., has been promoted to general superintendent. Mr. Harden is a graduate of the textile school of North Carolina State College, and for some time was connected with the Aurora Cotton Mills, Burlington, N. C.

W. C. Wilkinson, president of the Merchants and Farmers National Bank, Charlotte, N. C., has been elected president of the Lowell Cotton Mills, Lowell, N. C. John M. Scott, president of the Charlotte National Bank, was at the same time made president of the Peerless Mfg. Co., Lowell.

A. M. Smyre, vice-president of the A. M. Smyre Mfg. Co., Gastonia, N. C., died at his home on January 8th, following a long illness. He was 84 years of age, and is survived by his widow, two daughters and one son.

L. A. Hamer has been promoted from superintendent to general superintendent of the Tucapau Mills, Stark Mills, Tucapau, S. C., succeeding E. A. Hill, who has held that position for more than thirty years.

T. V. Mullinax has returned to his former position as overseer of carding at the Judson Mills, Greenville, S. C.

J. F. Chalmers has been promoted from overseer to superintendent of Fort Mill Manufacturing Co., plant No. 2, Fort Mill, S. C.

W. A. Hunt has resigned as overseer of carding, spinning, spooling and warping at the Aliceville, Ala., plant of the Alabama Mills Company to become overseer of carding at the Bibb Mfg. Co., Macon, Ga.

John S. Draper has been elected secretary of the new Virginia Maid Hosiery Mills, Pulaski, Va.

George H. Parker, formerly overseer of spinning and twisting at the Bibb Mfg. Co., Macon, Ga., is now overseer of spinning and spooling at the Atlantic Cotton Mills, Macon.

A. J. Jorgensen, superintendent of the dye and polishing plants, Bibb Mfg. Co., Macon, Ga., has been made supervising chemist, and Curt Mueller, formerly assistant, has been made superintendent, with J. C. Sheehan, overseer, being promoted to succeed him as assistant superintendent. R. E. Sheehan is now overseer of raw stock dyeing.

J. J. Hyder has become overseer of weaving, slashing, winding and warping at the Social Circle (Ga.) Cotton Mills. He was formerly overseer of weaving at the Werthan-Hamilton Co., Nashville, Tenn.

H. H. Stewart, Jr., has returned as manager and superintendent of the Kilby Cotton Mills, Montgomery, Ala., according to report.

E. B. Brannen has become overseer of spinning, spooling, warping and twisting at the Victory Manufacturing Co., Fayetteville, N. C. He was formerly overseer of spinning at the Spindale Mills, Spindale, N. C.

Emil W. Seasongood, formerly vice-president and manager of Mojud Hosiery Dye Works, Inc., has organized a New York corporation under the name Seasongood Hosiery, Inc., 20-02 to 10 125th St., College Point, New York City. Mr. Seasongood is president and general manager of the concern, which will engage in the general hosiery business specializing in the dyeing and finishing of silk hosiery.

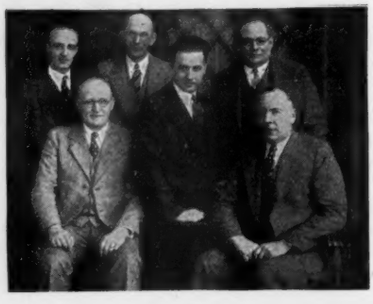
Robert G. Barr is now southern representative of E. F. Drew & Co., Inc., New York City, manufacturer and distributors of Naothope, a colloidal alkali for use in dyeing, bleaching, etc. His headquarters are at 200 Green Ave., Greenville, S. C.

Lester R. Arnold has been transferred to the office of J. R. Worsfold, sales manager of the perforated metal, spiral, apron and card clothing departments of the Wickwire Spencer Steel Company, 41 East 42nd Street, New York City. Mr. Arnold will act as engineering assistant to Mr. Worsfold, with particular reference to the card clothing division.

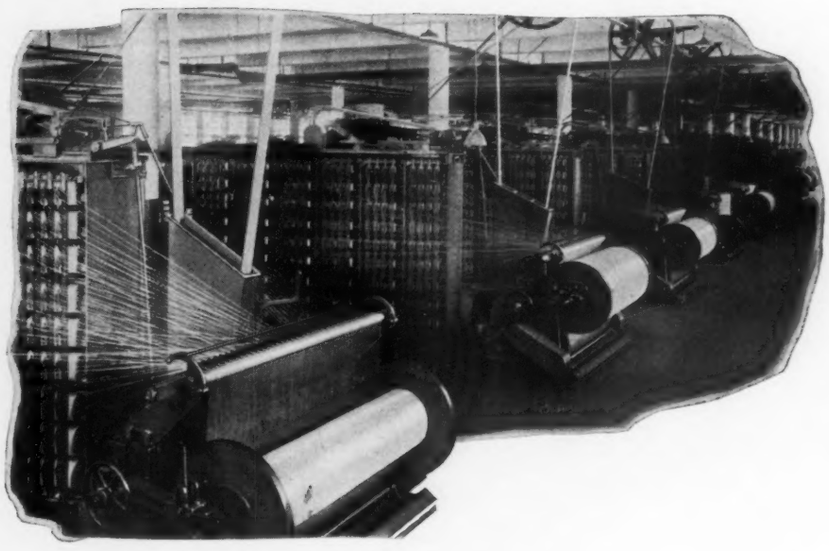
Franz E. Baker has been made instructor in cotton yarns and knitting, at the Lowell Textile Institute, Lowell, Mass., succeeding N. E. Jones, who has become superintendent for E. A. Watkins, Portland, Maine. Mr. Baker, who graduated in 1926 from the textile engineering course, went directly to the Cotton Research Company laboratories of Lockwood, Greene & Co. After a short time he was transferred to the South where he was engaged in research work at Pelzer and Tucapau, S. C., and Stark Mills, at Hogansville, Ga.

TRICO MANAGERS' CONFERENCE.

The group at the right is the photograph of Trico Fuse Mfg. Co. field division managers, who met recently in Milwaukee. Top row, Fred G. Masek, southwestern division; Charles R. Hodgson, southeastern division; Fred C. Geiler, central division. Front row, Ben M. Slicting, sales manager, H. E. Hartstein, eastern division, and Oscar H. Jung, secretary and general manager.



''EVERY KNOT A WEAVER'S KNOT''



UNIFORMITY OF TENSION IN SPOOLING AND WARPING

"Air Friction" Tension Is *Uniform* Tension

MOST mill men will agree that low tension in the spooling and warping process is a highly desirable thing because it means less loom stops for broken warp threads, but how many realize that uniformity of tension especially in the warper is just as important as low tension. A thread wound tight on a warper beam will come off tight at the slasher and will wind tight on the loom beam. Such thread will take more than its share of the strains of weaving and will break down.

In our High Speed Warper, the yarn packages turn on ball bearings with practically nothing but air friction as a resistance. On our Automatic Spooler, in the ballooning of the thread, air friction again is the only resistance. This air friction is, of course, the only perfect "tension device." It offers a natural, soft and uniform resistance to the winding thread that cannot be equalled by any mechanical and therefore artificial tension device ever made.

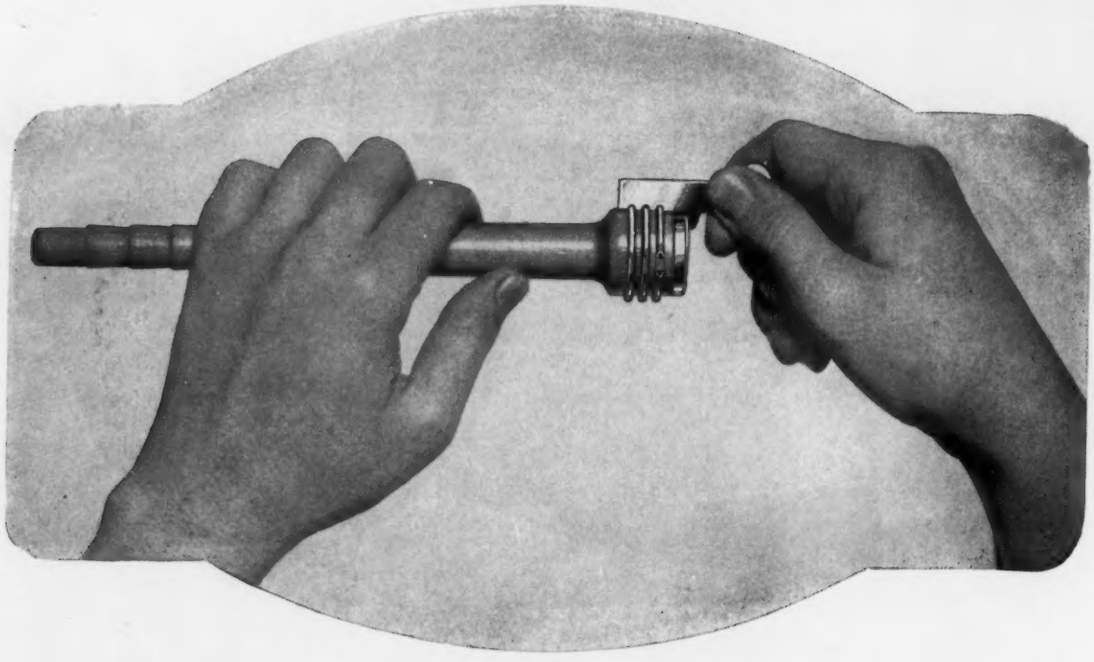
Think This Over!

BARBER-COLMAN COMPANY

General Offices and Plant

ROCKFORD, ILL., U. S. A.

FRAMINGHAM, MASS. GREENVILLE, S. C.



A Few Facts About the Origin and Development of Automatic Loom Bobbins

THE fact that U S Bobbin & Shuttle Company originated the Automatic Loom Bobbin may not interest you.

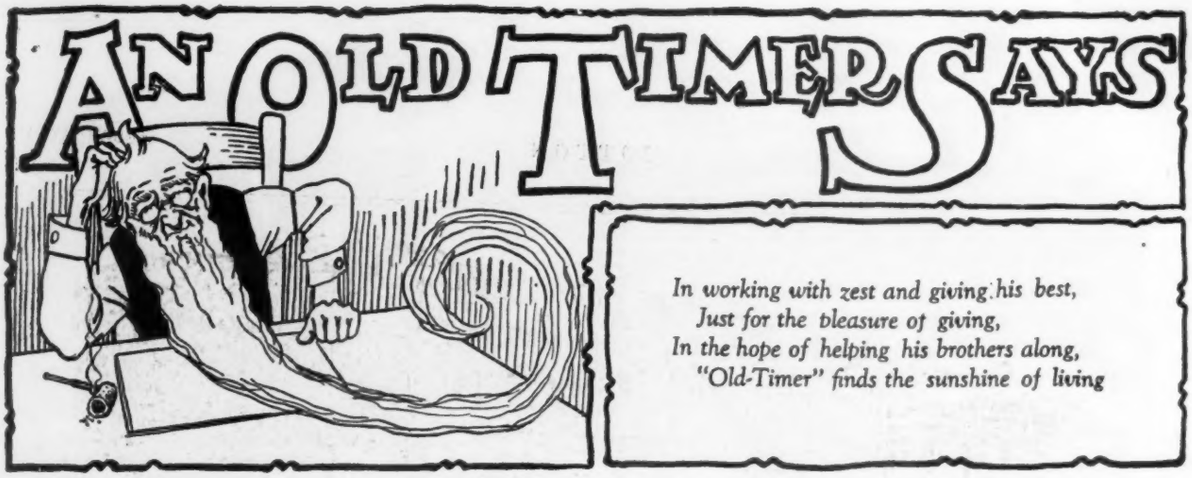
But when you buy Automatic Loom Bobbins, the fact that we have had seventeen years' additional experience over that of any other manufacturer in the development of men, methods, and machinery for the making of better Automatic Loom Bobbins *does* mean something to you. The fifteen million Automatic Loom Bobbins made in our factories during 1927 prove one thing—there is more than one mill man who is convinced he is getting more for his money in production, better yarn, better cloth, and fewer smashes when he buys U S Automatic Loom Bobbins.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.

GREENVILLE, S. C. HIGH POINT, N. C. PHILADELPHIA, PA. ATLANTA, GA.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES



In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

The other day I received the following telegram:

OLD-TIMER,
.....

COME TO ATLANTA EARLIEST CONVENIENCE FOR BUSINESS CONFERENCE

EDITOR COTTON

My reply was:

EDITOR COTTON,
ATLANTA GA

I RECEIVED YOUR TELEGRAM RIGHT AT THE TIME WHEN THE CONFOUNDED SPINNING LOOKED LIKE A CYCLONE HAD STRUCK IT WITH THIS GREEN COTTON AND THE BOSS WEAVER HAD GONE HOME SAYING HE HAD THE FLU OR SOMETHING AND EXPECTED IT WOULD LAST UNTIL THE NEXT SET OF WARPS HAD GONE THROUGH THE LOOMS STOP AND A LETTER JUST RECEIVED FROM THE PRESIDENT WANTS TO KNOW WHY LAST WEEK'S PRODUCTION WAS TWO POUNDS LESS THAN THE WEEK BEFORE STOP I TOLD HIM TO SAVE HIS TEMPER UNTIL THE FOLLOWING WEEK WHEN THESE DARN WARPS STRUCK THE WEAVE ROOM BECAUSE HE WOULD NEED IT ALL THEN

WHAT DO YOU WANT WITH ME ANYWAY STOP IF YOU DON'T LIKE THE WAY OLD-TIMER AND JIM ARE HANDING YOU THE DOPE YOU KNOW WHERE YOU CAN GO STOP THESE SMART ALEC EDITORS THINK THEY KNOW IT ALL ANYWAY STOP BESIDES I THINK I CAN GET A JOB WITH FARM AND FIRESIDE AND I WOULD LIKE TO TALK ABOUT CHICKENS HOGS AND COWS AWHILE ANYWAY

THIS IS ONLY WEDNESDAY AND THE WASHING HASN'T COME IN YET STOP THE LIZZY CAN'T MAKE THAT LONG A TRIP AND I NEVER COULD SLEEP ON THE TRAIN SO BY HECK I AM JUST NOT COMING

OLD-TIMER

DAY MESSAGE
COLLECT

Now, that is the message I wrote out but didn't send. I just decided to go down there where I could tell that Editor face to face all I wanted to.

Say, fellows, did you ever get a calling down from the boss, and the more you thought about it the madder you got?

Then when you *saw* the boss, you didn't seem to be quite so mad, and after the conference you decided the boss was right after all, and you were darn glad you didn't let your temper cause you to lose your job?

Well, when I opened the door to Editor Robert W. Philip's office, here he comes to greet me with a smile from ear to ear.

"Hello, Old-Timer, we are sure glad to see you." (Get that *we*). And here comes Floyd Childs, his assistant, and he looks like he is really glad to see me, too. Then Mrs. Meade, the stenographer who takes the Editor's dictation to me, is standing there ready to shake hands. Of course, you know you can't show your ugly temper in the presence of ladies, so I began to cool off a little bit.

Old-Timer Invades Editorial Sanctum.

As indicated in the accompanying story, Old-Timer visited us in Atlanta recently—and you can imagine that the old gentleman talked to us just as he does to Jim when he visits his mill.

Our enterprising photographer caught Old-Timer, quite unsuspecting, in a typical pose. Since many of his readers have been curious to see the original of the cartoon in the heading, we present this photograph above, showing Old-Timer telling the Editor about something he is or isn't doing as Old-Timer would like to have it.

EDITOR COTTON

"Well, what do you want with me, Mr. Editor?"

"Nothing in particular, Old-Timer, except that you have been working pretty faithfully for the past seven years, and we wanted you to come down for a friendly 'confab' about several things we have in mind for the readers of COTTON. Sit right down here and have a cigar."

"No, thanks, but if you don't mind I'll fire up the old corn-cob, and we'll get down to business."

Say, readers, if you could have heard that Editor talk to me about COTTON, you would have thought he was talking about the Bible or all of Shakespeare's works or the Declaration of Independence, or something else that was worth about all the money in the world. Anyhow, he pointed out to me that I must give the readers of COTTON dope that would

The Horse Car

versus

The Electric

CAN you imagine any street car company in this day and age using the horse car in competition with the modern electric?

And yet,—in the Textile Field—there are mills depending on humidifying equipment installed way back in the "Gay Nineties" who try to compete on an equal basis with mills operating at lower costs and turning out superior goods through the use of modern (and, therefore, efficient) humidifying devices and apparatus.

Scores of mill owners have already found out that excessive production costs and inferior products are traceable largely to old and inefficient humidifying equipment. They found the remedy by consulting one of Amco's specialists. These "Air Doctors" are at your service.

THIS newly designed Amco Humidity Control automatically regulates and controls humidity in Textile and other mills without using wet or dry bulb actuated devices.

If you can't answer these questions you ought to send for an Amco "Air Doctor" at once.

1. How much can your production costs be lowered and your product improved by the installation of modern humidifying equipment?

2. What per cent will a modern humidifying system pay you on the investment?

3. What relative humidity is giving your competitors best results in weaving, spinning, carding, knitting, roving and combing departments?

Amco "Air Doctors" gladly answer such questions as these in a written report, *made without obligating you*, after a survey of conditions in your plant.

Why not get their diagnosis? It will cost you nothing and may easily result in changing red figures into black ones.

AMERICAN MOISTENING CO.

Humidifying Devices

Air Doctors Since 1888

EXECUTIVE OFFICES
261 West Exchange Street,
Providence, R. I.

SALES OFFICES
Boston, Mass. Atlanta, Ga.
Charlotte, N. C. Greenville, S. C.

(a) enable a young overseer to get promoted;
(b) enable an old overseer to hold his job; and
(c) enable a superintendent to make $50,000 per year more for his stockholders than he had ever made before!

"But, Good Lord, Bob, must we do all that just for a $1.00 subscription? Looks like to me you ought to charge about $25.00 per month for subscriptions."

I saw him when he slipped his hand under the desk and pushed a button, and in comes Mr. Finigan, the circulation manager, and he says, "No, we can't charge $25.00 per month," and then confound if he didn't talk to me about what it was our duty to give COTTON'S readers until I had decided to sell my old tin lizzie and divide it up among the subscribers who had paid their dollar. I was just about ready to cry for the poor subscribers who had paid a whole dollar for information which in Old-Timer pages alone, I knew had cost me hundreds of dollars to get and in some instances years of hard work to obtain.

I Feel Sorry—

In other words, in the past six or eight years I know I have given to COTTON'S readers absolutely authentic information which it would have cost any man several thousand dollars and years of research to secure—and the "HOW OTHER MEN MANAGE" department has saved numbers of overseers and superintendents their jobs—and then here is this Editor and Mr. Finigan jumping on me with the request that we must give them *more* and *more* for that dollar!

I say I was just about to pull out my bandana to wipe away the tears when in comes Mr. Rooke, the executive vice-president, and I thought for a few minutes that he was going to take my side.

But, Holy Moses, he starts in about his advertisers, and darned if he didn't bring up an entirely new angle. Say now, fellows, honest to goodness, it *is* a fact that you would not be getting all the practical information you find in COTTON today if it wasn't for that man Rooke and his advertisers. He finally got it through my head that his advertisers were paying that $25.00 for each issue of COTTON that we are getting for 8 1/3 cents a copy.

and then Repent

Don't you see, fellows, that if you are deriving actual information through COTTON which is causing you and me to be better overseers and superintendents; enabling us to run our jobs better; causing us to get promoted to bigger jobs—that we must feed the old hen which lays the golden egg in order to enable COTTON to do more and more for us? That $1.00 that we send in doesn't pay for the paper twelve copies are printed on. Therefore, I have made up my mind that I'll scan through the advertising pages more carefully each month, and buy my supplies from the firms which are helping to give me the practical information I get through the pages of COTTON to help me run my job—provided, of course, that prices and quality are the same. I've just decided that is only helping myself and my job and the firm I work for.

Well, to make a long story short, I am going to tell my brother overseers and superintendents that the only way they can possibly realize the work, the money, the brains, that are being expended in the publication of COTTON in an effort to make the subscribers the most efficient body of overseers and superintendents in the world, is just to take a day off and go to Atlanta and look through the plant.

You and I know that the most successful cotton mills in existence have the reputation of having the least number of changes in management. Isn't it a fact that most of the mills you know of which have gone broke haven't got the same personnel, the same men at the helm, so to speak, but most of the big successful mills *have* got the same management that they have had for years and years. Well, here is what I found on COTTON:

Some More "Old-Timers"

First, there is Mr. W. R. C. Smith—the "Chief," who located in Atlanta in 1905 and has been there since, building up the South through publishing a long list of business and technical magazines.

Then there is the Editor, whom you all know. . . . well, he has been with the firm since he was a baby. Executive Vice-President Rooke has been there for fourteen years. The treasurer started eighteen years ago as a copy writer, the secretary began in 1911 as bookkeeper. The advertising service manager has been there for twenty-one years, starting as office boy. The vice-president who looks after COTTON in Cleveland, twenty years; the general sales manager, thirteen years, and so on.

And me, Old-Timer? Yes, I've been with COTTON awhile myself. Long before the Old-Timer page started I was arguing it out with COTTON'S readers about machinery and mill calculations. Anyway, if I haven't been with COTTON as long as some of them, I've got the longest beard, and I know two or three of the firm who would like mighty well to have part of my whiskers on top of their heads.

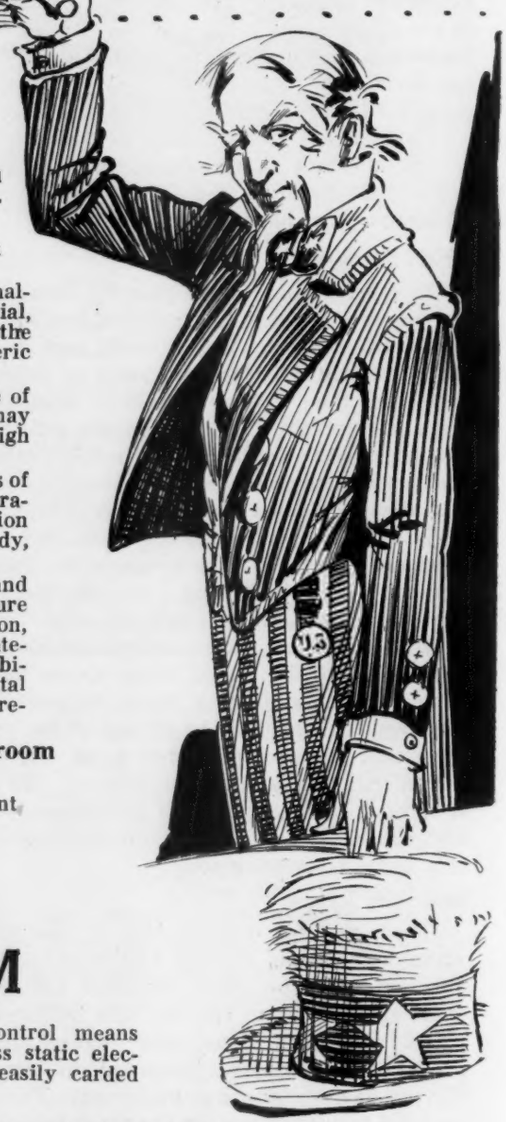
Another thing you know about the most successful mills is that they generally have the best overseers' and superintendents' jobs of any mills, don't they? That is, they pay more for overseers and superintendents than the unsuccessful mills, don't they? And the men are more enthusiastic about their work, aren't they? Well, I found that situation to exist when I did a little exploring on my own hook.

Gosh, man! Don't you begin to see what a privilege it is to have a copy of COTTON on your desk each month? I know that no subscriber who has not been to Atlanta to see for himself can realize what a wonderful organization of the highest-class men in the business is functioning to give you what you are getting in COTTON.

They have, each and every one, got their whole hearts into the work. They are, each and every one, men of years of experience. Each man seems to be almost daffy on the subject of giving you and me more and more for our dollar.

And here is a secret, boys, those fellows are too confounded bashful, or shy, or something, to tell you about it, but I am here to tell you that there is more in store for you through the future pages of COTTON

The CHALLENGE of today is for a more specific knowledge of desired standards of perfection of Air indoors for Health and Comfort,—the relation of man to his atmospheric environment.



In order to establish such fundamental information, the Research Laboratory of the American Society of Heating and Ventilating Engineers in cooperation with the U. S. Bureau of Mines and the U. S. Public Health Service, has been engaged in research since 1920.

"Physical Characteristics of Air Which Influence Elimination of Body Heat, More Important Than Bacteriological or Chemical Characteristics."

Following are brief extracts from the extensive report published in the Journal of the American Society of Heating and Ventilating Engineers.

"THE high incidence of respiratory illness should stand as a challenge to concerted action on the part of the public health official, the physician, and the air-conditioning engineer to improve the knowledge of the relation of the health of man to his atmospheric environment."

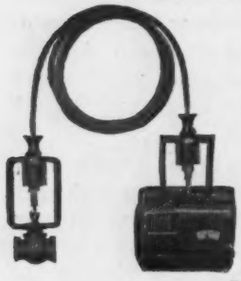
"A person's feeling of warmth is not due alone to the temperature of the surrounding air. Dry air at a relatively high temperature may feel cooler than air of considerably lower temperature with a high moist content."

"As the temperature of the air and surrounding objects rises the loss of heat by convection and radiation decreases. When the air temperature reaches that of the body the loss by radiation and convection ceases. Finally, as the air temperature exceeds that of the body, heat is transferred from the air to the body.

As the temperature of the air rises and heat loss by radiation and convection decreases, the body endeavors to maintain temperature equilibrium by making available more perspiration for evaporation, resulting in greater heat loss by evaporation. From the above statement, it is concluded that there must necessarily exist certain combinations of temperatures and humidities which produce the same total body heat loss by radiation, convection and evaporation, and therefore, the same feeling of comfort or discomfort."

Experts agree that it is impossible to maintain relative weave room humidity without room temperature control.

You can prevent condensation of moisture and the consequent "roof or ceiling drip" by the installation of



Sylphon **No. 11**

REGITHERM

Accurate Weave Room Temperature Control means strong cotton, silk or worsted yarns, less static electricity and parallel laying fibres more easily carded and drawn.

No matter what type of humidifying system you use a Sylphon Regitherm employing the original and only genuine Sylphon Bellows as its expansion unit will make for its greater efficiency.

See also CONSOLIDATED TEXTILE CATALOG

There Is a Distinct Relation Between Room Temperature and Efficiency of Employees

Let us send you complete descriptions of the Sylphon Regitherm. Ask for Bulletin UR-102.

Representatives in all Principal Cities in U. S. A.
European Representatives, Crosby Valve & Eng. Company, Ltd., 41-2 Foley St., London, W 1, England.
Canadian Representatives, Darling Bros., Ltd., 140 Prince St. Montreal, Que., Canada.

than you could ever dream of. If you have a son, a brother, or a good friend, or if you know of a young man who is expecting to make a mill man of himself, give him a subscription to COTTON and exact a promise from him that he will report to you each month the one article he read in that issue that appealed to him most.

Believe me, you will get a lot of pleasure out of that dollar you spent for that fellow, and the day will come when he will shake your hand and thank you for giving him a start.

Say, Mr. Overseer and Superintendent, what if your boss were to say to you, "I want you to hire enough young overseers to take the place of every section man in the mill and pay them overseers' salaries for running those sections."

Holy smoke, suppose you had a bunch of men like that on sections, each one getting overseer's pay, with the experience of overseers who know not only the best way to set up machines, but realize the importance of getting every ounce of production, of saving every dollar on supplies, with their experience of knowing how to prevent seconds—and above all, of being absolutely loyal.

Sure, you would say, with that organization I can get more out of this mill than any mill in existence!

Well, that describes my impression of the organization which is running COTTON. If you don't believe Old-Timer,

Go see for yourself!

New England Tries New Manufacturing Methods

AS AN aftermath of the six months' strike in New Bedford, Mass., fine and fancy textile mills, committees of manufacturers, labor unionists, and citizens, held a meeting in the New Bedford Hotel just before Christmas Day and discussed what is termed a "labor specialization plan", now being put into effect with the aid of a staff of engineers. Should anticipated results meet expectations they will force still harder competition in the industry and will hasten the elimination of those manufacturing plants that are becoming obsolete in equipment or are badly managed.

As the long strain of recent months has developed weak spots in many mills, due to improper equipment, poor adjustment of machinery to product, or to a lack of understanding of a given situation by managers in charge, the experimental work underway in the best center of eastern cotton mill production bids fair to be followed closely by all manufacturers.

The New Bedford meeting was public in character and full reports of it were published in the local newspapers. No very specific details of the character of changes that will be made in operating of the mills were discussed. An engineer was present and stated that a general reorganization of work is contemplated and this is merely the putting into effect of modern methods of manufacturing in the mill or a more scientific arrangement of various jobs.

Operations will be split into component parts and designated as skilled, semi-skilled and unskilled. The operatives who are relieved of some of their unskilled tasks and take on additional skilled duties will receive more pay than on the old basis. Instead of so-called learners in the mill beginners will start in on unskilled tasks and those who are ambitious and desire to get ahead will have an opportunity to advance in a logical way as vacancies occur in the next higher position.

Surveys of each plant were to be made by a corps of engineers to recommend and carry out the desired changes when approved by the managers and by operatives whenever it is necessary to make radical changes in their occupation. It may develop from the surveys that machinery will have to be supplied in place of that in use or may only have to be rearranged so that it may be operated more freely by the worker in charge. Each department of the mill will have its own problem and the engineers will not undertake to say in advance what action will be taken in any specific case until all phases of it have been studied in relation to preceding or succeeding operations in the room.

The engineers say it will occasion no surprise if as a result of their surveys and studies part of the mills should have to undertake the revamping of their equipment in many departments. In many instances they expect that new machinery will undoubtedly replace that of older type or design. The restricting factor which will govern this phase of progress is whether the plants as existing are able to operate on a profitable basis. Unless an operating statement shows consistent profit, even the best management cannot hope to have funds appropriated for plant improvement.

The human element in making changes of the character outlined is the one that will call for the exercise of much patience and forbearance and it is for this reason that the New Bedford manufacturers felt forced upon to call on union leaders and citizens to cooperate with them in making the experiments successful.

There is no condition in the southern industry paralleling that in the mills in New Bedford where the records show that for the past two or three years they have averaged to operate approximately only 69 per cent of the equipment. The promoters of the new plan are confident that they can bring about adjustments with the earnest cooperation of all who are interested that will enable mills to run at 85 per cent capacity.

Wherever changes are made that will show reductions of cost for the benefit of the mills it is proposed to share some part of the gain with the workers in the form of wages and it is expected that the more skilled employees will be enabled to earn much more than they do at the present time in ratio to the av-

(*Continued on page* 433.)

"Budget Control"

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Sixteen fundamental reasons for a real *Budget* in business, just how each part of the Budget should be prepared, and then the principles of its effective operation—are clearly set forth in this little book.

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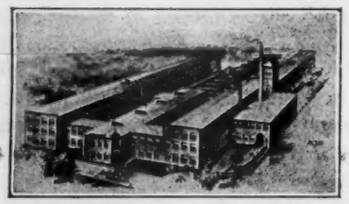

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Wants Suggestions on Spindle Speed.

EDITOR COTTON:

I should like to have the opinions of some of your readers as to the best and most productive speed for a Draper No. 2 spindle, with the following conditions:

Our warp numbers are 28s to 30s carded, and we use a 1¾-inch No. 2 flange ring. Our filling numbers are 38s to 42s carded, and we use a 1⅜-inch No. 2 flange ring. Our cotton is 1-inch to 1 1/16-inch staple.

In giving recommendations for spindle speeds, I would also like to have front roll speeds, and also whether the figures on warp refer to regular warp wind or filling wind on warp.

CONTRIBUTOR No. 4136.

Mineral Oil in Softening.

EDITOR COTTON:

I have been very much interested in the article by Burton F. Mitchell, "Preparation of Yarn for the Knitter," in which he makes a statement regarding the use of mineral oil for softening. He states that competent dyers regard mineral oil as a dye resistant, and that it must be removed entirely from the yarn before the yarn could be dyed uniformly. This is a pretty strenuous statement to make and might be liable to cause some misapprehension as to the safety of using mineral oils.

It will, I think, be understood that there are several kinds of mineral oils. It is necessary to distinguish between oils that are not injured, oxidized or made rancid by air and oils that can be, and are, spoiled, damaged or changed radically by age, heat or air. For example, all bleachers know the difficulty of removing an oil spot made by a dripping bearing. But this is not mineral oil, the black stuff that dripped from the bearing was not mineral oil, it was a mixture of oxidized mineral oil, soap, metallic soaps and oil compounds, together with tarry matters produced by interaction of metal with the acids in the soaps, all under the influence of heat. The net result is something that is called oil spots, but it is not mineral oil in the sense understood by those who use mineral oil on cotton yarn.

The mineral oils used on cotton yarn, many of which are deliberately chosen by dyers because of their unique qualities, do not contain within themselves any mechanism for their own self destruction. They are not mixed with easily oxidized animal fatty acids, which would act on metal. Instead they are blended with non-oxidizing emulsifying agents which are themselves absorbed by the yarn. Instead of the yarn, after softening, containing the mineral oil part of the softener used, it contains also some of the emulsifying agent. When the dyer wishes to remove the greater part of the mineral oil he finds the proper emulsifying agent on the yarn ready to assist in the good work. It is not quite correct to say that the mineral oil must be removed from the yarn completely before the yarn can be dyed in safety.

It is a fact that dyeings of perfect levelness and fastness can be and are being produced with the yarn containing varying quantities of mineral oil. The writer has made some experiments along this line which are supported by the dyeing on the large scale of considerable quantities of cotton and rayon.

When starting to dye rayon, naturally there was no difficulty in noticing that the rayon was liberally sprinkled—sprinkled is too faint a term; doused, is a better one—with mineral oil. By actual analysis, that is to say, extracting the oil with ether and weighing the extracted oil, it was found to contain around six per cent of mineral oil. We then scoured the yarn with various trade scouring agents, tested the yarn for its mineral oil content and later dyed the yarn. Contrary to our expectations it was found unnecessary to reduce the oil content by first scouring below two per cent.

This is not the same thing as saying that rayon or cotton can be dyed with two per cent mineral oil in the fiber. What it does mean is that the various oils, dye assistants, used in the dyebath, can and do take care of the two per cent of oil and reduce it to so small amount as to make good dyeing possible.

What goes for rayon also goes for cotton. The writer has many times softened a batch of yarn with mineral oil and for one reason or another had to redye the batch. There was never noticed any difficulty caused by the mineral oil. Moreover, the amount of mineral oil taken up by the yarn is small. For example:

When using three per cent of a concentrated mineral oil softener in a bath of eight to one ratio, the yarn, by analysis absorbed less than one per cent. This was a bath that was exaggerated purposely as regards the concentration of the softener, actually the baths used are more in the neighborhood of twenty to

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

one, so the actual amount absorbed is much less than one third of the mineral oil content of the bath. This amount is too small to hinder the dyeing.

CONTRIBUTOR No. 4093.

"Textile Salesmen I Have Met—"

SOME months ago we published a letter from a mill superintendent commenting upon the different kinds of salesmen who call upon him. The descriptions he gave of his callers attracted much attention. Another mill man has prepared the following observations upon the same subject.

In fairness to the salesmen, we offer to present their rebuttals within the limitations of space. One of them has already come to bat with a reply, and we shall publish it in these columns next month. Correspondence from any salesman who wishes to reply by describing "Some Mill Men I Have Called On"—will be welcomed.—The Editor.

EDITOR COTTON:

Your contributor in the August number of COTTON has said some very pertinent things on the subject of textile salesmen. These gentlemen are always with us; they come upon us whether we will or not, and it is to be presumed that they must find means for prolonging their existence though at times their value to a suffering world does seem a little doubtful.

Your contributor mentioned several types of salesmen and shows a commendable restrain in his observations. He did not mention the type, not so numerous as they used to be, of whom it might be said, "the sun shines East and the sun shines West, but he knows where the moon shines best."

Still there are some types of salesmen traveling the territory, who do their brotherhood distinct harm. The first is the gossipy salesman; this man knows everybody in every plant, and is more than willing to tell you all about them. He respects no confidences, knows no decencies and is not averse to passing out on the side anything discreditable which he considers might be of interest. There are not so many of those, but you only need one to a thousand square miles of territory to thoroughly stir things up.

Next, there is a more sinister type; this is the man who, if you do not use his product, will knock you or your concern to other plants who may use your product. This seems to be a great sport. This is the same type of man who, if you do not buy from him will go to your superintendent and infer that you do not know your business.

Then there is the pseudo-technical type, supplied with a little fund of information; he presents himself to the trade hoping to be able to bluff his way through by peddling out "technical" information where he considers he can get away with it and where there will not be any flare back.

The other day a man called on me to sell some direct black. For some reason, the price was way up, over a dollar a pound. I asked this man, "What are the special advantages to our type of work of this type of black that would justify its high price?" He just grinned in a very superior sort of way and said, "That's what you are there for."

Then last, but most important, there is the real salesman, whom we are all glad to have call on us. This man is polite; knows no gossip; is willing and competent to explain why his products are correct for your work, rather than infer that you are a fool if you don't use his stuff. This man is willing to say that he doesn't know the answer to some problem if he really doesn't know it. In other words, this type can stay all day if he wants to (but he doesn't) because his object in calling really is to give service. When this type can't do any more for you he gets up and goes of his own accord.

ANOTHER MILL MAN.

"T. A. D." Answers His Critics.

EDITOR COTTON:

This is one of the times that inspiration has caused me to get busy and answer one who has called my hand. In the October issue of COTTON, "CONTRIBUTOR No. 4022," in his article, "The Possibilities of a Good Section Man," says that he enjoyed reading my comments in the June issue, but as he was not a cloth room man he would let someone else give me the blistering that I was expecting.

When I wrote that article I had no intention of being blistered, unless it was by a cloth room man. The article was written from experiences that I had had, and if I am ridiculed for saying such, I have the goods, and had it in my bones when the article was written. At that time I was having to go through with just such an experience as I was writing about. I believe in being honest with ourselves and the public when we write in the "HOW OTHER MEN MANAGE" column of COTTON.

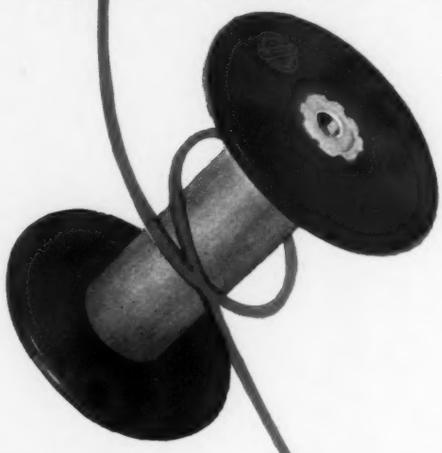
As one of the writers has said, "Some people despise and dislike anything that can be called system." A system, however, is merely an orderly and common sense way of doing anything. System substitutes order and organization for confusion and chaos. Civilization would be impossible unless the world was trained to do things in an orderly way. System makes it possible for us to have government, society, education and industry. Let's not only apply system to our everyday work, but be respectful and careful of every rule and regulation, even though its purpose may not be entirely clear to us.

The whole idea that prompted me to write the article in the June issue was that I was trying to make an overseer out of an old piece of human machinery. I am not knocking the older people, but it is darned hard to make some men grasp things and remember the lineup and system that it takes to arrive at the best possible results for the department. It is hard to teach an old man a new route, but even then, he beats someone who can't be held down.

I sometimes get ashamed while writing my little thing for COTTON'S readers, they are such little and common things that they seem to be just ordinary obstacles that can easily be taken care of by ordinary mill men. I take things a good deal to heart and put myself in the other fellow's place, I really reason things out before I go to a man with the last message.

LESTERSHIRE SPOOLS HAVE CHANGED ACCOUNTING, AS THEY HAVE SPOOLING!

WOOD spools ruled the roost a few years ago. But heads quickly broke, chipped and cracked. Expensive?—yes, so wood spools were charged to expense.

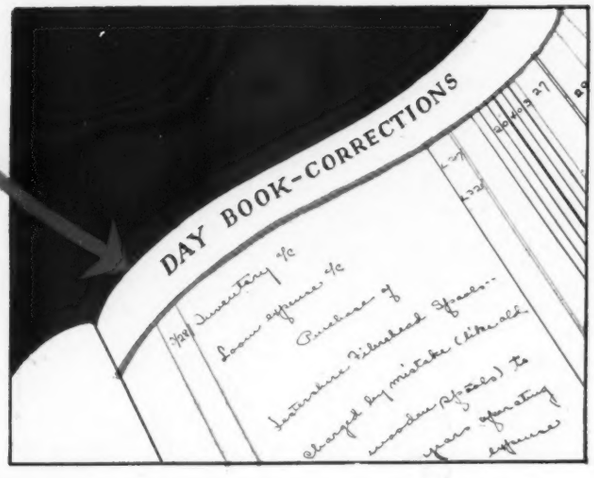


THEN Lestershire Fibre Spools were introduced. Made of specially selected fibre. Patented construction. Remarkable spools, that last longer than the machines.

So Lestershires are properly charged to capital account. Just as are looms, spinning frames and other lasting equipment.

This method also puts a different complexion on the balance sheet. Instead of spool expense the inventory shows a Lestershire spool investment.

Do you charge off spools to expense, or do you equip with ASSETS?



Lestershire
Fibre Head Spools

Reduce direct labor costs.
Eliminate your spool replacement expense.
Eliminate loss of yarn due to spools (in many mills this loss runs into thousands of dollars).
Eliminate all possibility of injury to employes from rough or slivered spools.
Increase about 10% the yardage on your spools.
Eliminate warper kinks and knots due to spools.
Eliminate broken ends on your warpers due to spools and thus increase warper production 20% to 30%.
Materially improve the quality of your warps; and thus better the quality and increase your production generally.

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After months of hard Service

THE grind of all-day and every-day performance in a modern cotton mill demands scales that maintain their fine balance through the ceaseless battle of production.

The quality of your product will be ruined at the very start—if the scales are not right.

Toledo Lap Scales are your surest guarantee of uniformity on quantity. No springs, no quick-wearing parts; every Toledo Scale is a modern giant of enduring efficiency.

Write us to send you the Toledo Plan Man who will check up your lap-weighing problem with no obligation to you.

We have made studies to determine the best set-up and methods for your particular industry.

Why Toledo Scales are better:

(1) No springs—balance not affected by temperature or atmospheric conditions.

(2) Self-aligning rust-proof bearings.

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(5) Specially tested knife-edge pivots, sectors, dash-pots, spacings, durability.

Toledo Scale Co., C-1
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Will you please have the Toledo Plan Man call on me [illegible] there is no cost or obligation whatever on my part.
Name _____
Address _____

Toledo Scales

NO SPRINGS **Honest Weight**

My boss once told me that any fool could fire or run his help out of the room, but that it takes a manager to hold the operatives and get the desired results. The operative is with you because he wants to be, or because he has got to earn a livelihood; then reason with him and get the results. It often happens that trouble comes from misunderstandings, or not understanding the orders given. This brings to my mind an incident one day when the boss asked me when an order was given. I told him when I told the man what I wanted him to do, and he said that I was wrong. He said, *"An order is given when the man who receives it understands and sees it the same way you do."*

T. A. D. (GA.)

Some Points on Carding.

EDITOR COTTON:

Again, allow me to say how pleased I am that someone told me of COTTON. I am only sorry that I did not know of it sooner. I like the way things are brought out, in such a practical and theoretical manner. "HOW OTHER MEN MANAGE" is a fine section, and a great help to all, especially the young overseers, second hands, etc. Sometimes we see things which strike us as being funny, yet, maybe they get our thoughts working, and perhaps bring out a point that would otherwise have lain dormant. It just reminds me of two overseers who were putting a sample through. One had to take it through the bale breaker, opener, picker and finisher picker, and the other had to take it through the cards. (It was to check the loss at each process). When they came to compare notes, they found out that there was some error with regard to the notes. One said that he would swear before David that his figures were right, anyhow, he would take them away and see if he could find any mistake. When he came back, they found they had 100 pounds of sliver, including waste, out of 100 pounds of cotton. Calling one by name, the other overseer said,

"But what about your invisible loss, Mr. So-and-so?" and the answer was, "Now look here, we had no invisible loss; we swept it all up."

On another occasion, the writer was accosted by a sizer, who said he could not understand how it was that a certain hank intermediate roving made out of low-grade cotton should weigh the same as the same hank roving intermediate made out of waste. He said it ought to be lighter. He did not understand that it was the weight per yard that governed the hank roving.

Now, in regard to "G. S. T. (GA.)." He has given use a fine theoretical description of a card and its work. I was wondering how he came to see all those fibers twisting around in the fashion in which he goes on to explain. It is a fine imagination, and we can't dispute some actions because we are not able to see them, but one point took my attention particularly, that is, the notes on the action of the front knife plate. He says the closer the top of this knife plate is set, the more strips will result. Now this is not the case in actual practice, but the very opposite, as the closer the setting, the less strips, and the farther away the setting, the more strips. The action of the knife plate being similar to the action of the mote knives, I fail to see this.

My opinion is, that the closer the knife plate is set, the greater the drawing or sucking action, the fibers being drawn down to the doffer and thereby giving a lighter strip. Whereas, the further away the plate is set, the weaker the suction, which allows the fibers to pass out with the flats. This can be illustrated by a water hose. If there is no nozzle on the end of the hose the water will just fall nearby, but if you press the end of the tube with your thumb, the water has to force itself, thereby going further than before. The air currents, I believe, play an important part in a card, as you will find that cards set exactly alike, but in a different position in the room, will card entirely different.

The card is indeed an important machine, and needs care and attention. It should be seen that the wire is kept clean and sharp. To grind light, and often, I find is best, as the grinding rolls not only sharpen up the points, but bring the sand and leaf from the foundation of the card clothing not removed by the stripping process.

The cylinder bearings should be kept in good condition and not allowed to heat up, as this has a tendency to bad carding.

As far as possible, foreign matter should be kept out of the laps—nails, hoop-iron, etc.—as once the wire has been damaged, it is never the same, and can never be brought back into the position that it was before being bruised.

J. W. H. (CANADA).

A Method for "Setting" Filling for Weaving.

EDITOR COTTON:

I have seen in the different notes of the various meetings published in COTTON that some mills are suffering from "chronic" kinky filling. Most every one has tackled this problem with different methods and means, but as yet no one has come forward with the suggestion that vacuum be used.

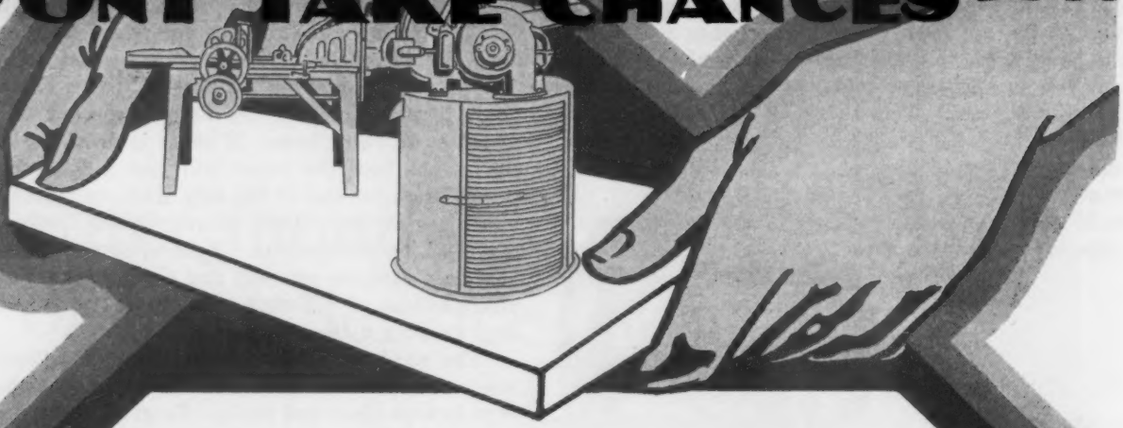
Needless to say, vacuum is a comparatively expensive proposition, but after a fairly high first cost for the vacuum system equipment, it is the surest way of getting satisfactory results in setting twist.

For the sufferers who think any cure would be better than the disease, I prescribe the following:

A vacuum pump, preferably one of the rotary type, directly connected to a motor; a steel tank cylindrical in form and placed in a horizontal position, or, a steel chest of a size suitable to the needs of the mill.

The chest or tank should be equipped with a spray nozzle such as is used in some of the well-known humidifier systems, or, probably an intake for steam would be more satisfactory in some mills. These tanks should be equipped with safety valves and the necessary gauges; the joints should be welded and the door should be equipped with rubber gaskets and some means of clamping it tight so the pump can create the vacuum with a minimum amount of loss. Some ingenious superintendent or master mechanic might have luck with a wooden tank, but it is doubtful un-

FOR MILLS THAT WISELY WON'T TAKE CHANCES - - - -



This offer is made to mills, having roving or feeler bobbins to clean, that wisely do not take chances on mill equipment.

Without any cost or the slightest obligation upon a mill's part, we want to demonstrate a Termaco, for cleaning roving bobbins, or an Utsman, for cleaning feeler bobbins, in the mill under the mill's own working conditions.

Demonstrations will be made only in mills where we sincerely believe they will reveal substantial savings and increased efficiency. So do not let any thought that a demonstration might be a waste of your time make you hesitate in writing us.

Simply ask for information regarding our demonstration offer. We promptly will furnish you with complete particulars.

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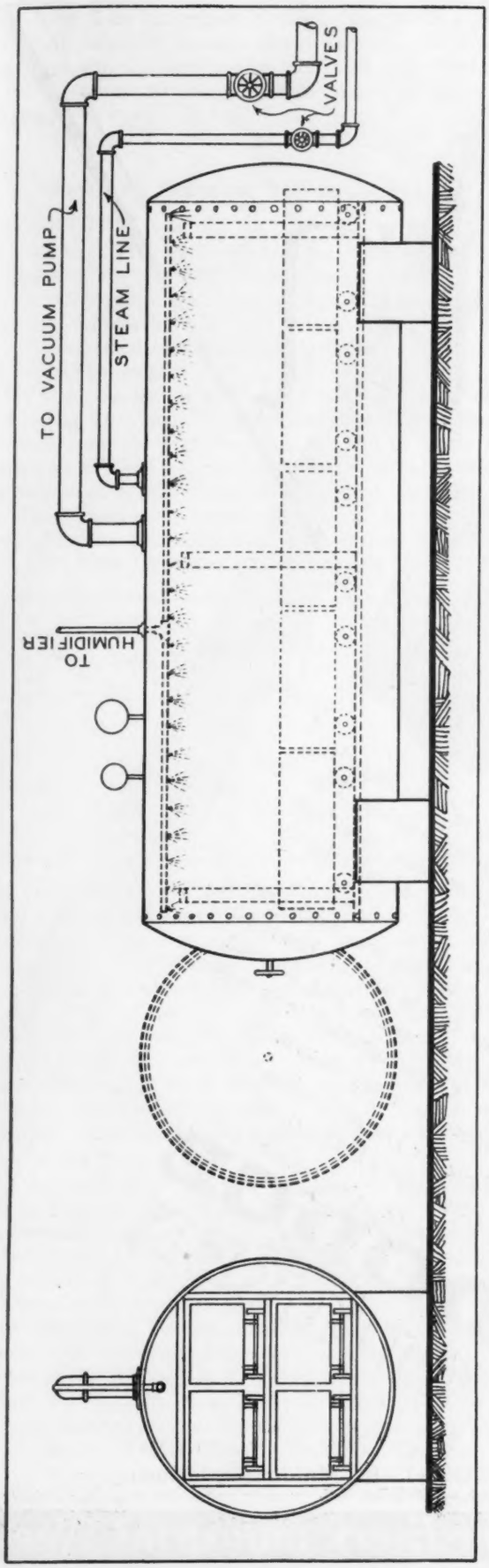


Tank for "Setting" Filling, Described by "Contributor No. 4134."

less he finds some way of making and keeping the joints air-tight.

It occurs to me that some mills who have a vacuum stripping outfit may be able to connect this tank with that system, which would save the cost of another pump. This can be done only if the present system is capable of taking on this extra work.

After the yarn is in the tank and the door closed tightly, start the vacuum pump, or open the valve on the line that connects with the stripping system. When the gauge shows a few inches of vacuum, which will take only a short time, depending on the capacity of the pump, close the valve between the pump and the tank. Then turn on the humidifier head, or the steam jet, and keep it on until the vacuum returns to zero. Open the door and remove the yarn.

It will take some experimenting with this arrangement to learn what gives the best results — water or steam—and what amount of vacuum will give the best penetration.

If the yarn shows too much moisture on being removed from the tank, replace it and draw off the moisture with vacuum. If this is done, it will be found that the door cannot be opened due to external pressure. It will be necessary, therefore, to place a valve in the tank so air may be permitted to enter the tank and thereby reduce the vacuum to atmospheric pressure. The door can then be opened.

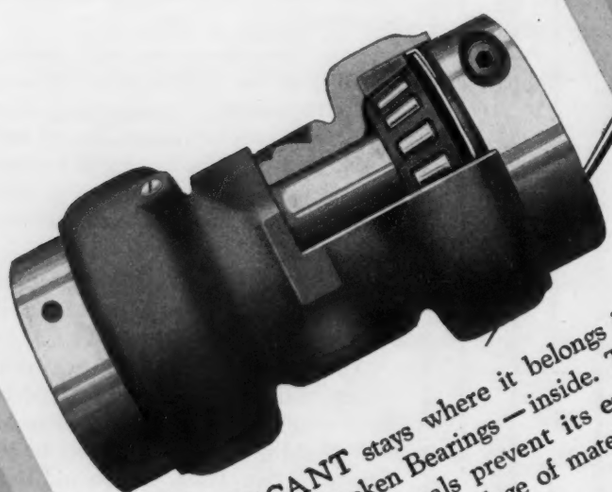
This proposition may appear complicated, or vice versa, but after actual practice it will be found to be quite simple.

The accompanying sketch will show how the proposition may be worked out. Considerable of the expense would be saved if the mill could pick up a satisfactory old boiler somewhere to be used for the tank. The pipe line from the humidifier system to the sprays inside of the tank is marked, as well as the steam line should this method be used. The pipe leading to the vacuum pump or to the stripping system (should this be available and be found advisable) is also indicated, the valves being located at one end of the tank for convenient control. With the vacuum in force, it would be difficult to open the door, so a vent may be placed in the center of the door for the purpose of allowing the air to enter the tank before endeavoring to open the door. This can be an ordinary valve arrangement, as stated, and when this is opened it will bring the vacuum to atmospheric pressure inside the tank. The end view at the left shows how the trucks are placed in the rack inside the tank. One level will be sufficient if the amount of filling is small, although this arrangement may be increased to three levels if the requirements as to the amount of filling so conditioned demand it. A simple wooden rack to hold the trucks is the best proposition, according to our experience.

The arrangement I have described has proved to be quite satisfactory in daily use on yarns with a twist multiple of ten times the square root of the number, which is considerably higher than the average mill ever runs.

In closing, I would repeat that I realize this kind of an arrangement is expensive, and requires extreme

Clean



LUBRICANT stays where it belongs in Dodge-Timken Bearings—inside. The indestructible steel seals prevent its escape and the possibility of spoilage of material in process of manufacture.

Cleanliness is a big feature recommending Dodge-Timkens for textile service, but it is only one. Ruggedness means long life and power savings. Once installed it is only necessary to lubricate every six months.

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care, but I do know that it will do the job if a mill deems it worth the expense and trouble and care which is necessary. I would be glad to answer any questions which your readers might ask in regard to this suggestion.

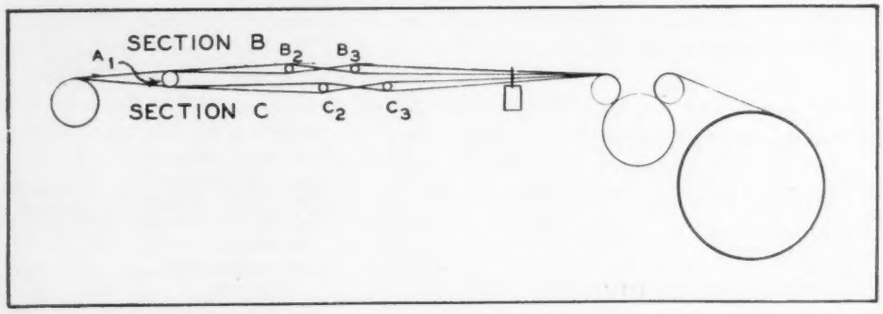
CONTRIBUTOR NO. 4134.

Picking a Lease for Re-Sizing a Warp.

EDITOR COTTON:

On page 1147 of the September issue of COTTON, "CONTRIBUTOR NO. 4052" asked how to pick a lease on a 5,000-end warp for re-sizing; this warp being too soft for weaving.

An essential feature of this re-sizing process is to arrange the ends in a level, even sheet on the head section of the slasher so that the warp may be counted in the comb and then be wound on the loom beam without any excessive tangling of yarn or waste of material or labor. To secure this level and even sheet a half lease is first picked on the entire warp, which will be termed *A*, by raising every alternate end. This separates the warp into two equal sections, *B* and *C*, of 2,500 ends each, and a lease band "a" is inserted



in the opening thus formed. Then on each of these two sections a full lease is picked, first by raising every alternate end of each section and passing lease bands "b" and "c" through the openings formed. Each section is then closed and opened again by reversing the positions of the ends (the bottom ends passing to the top and the top ends passing to the bottom) forming two more openings, with lease bands "b_1" and "c_1" passed through. These bands provide a means of inserting split rods at the head section of the slasher, the split rods maintaining a lease throughout the sizing of the warp.

As considerable labor is attached to the picking of these leases by hand, and since the process is rather a tiresome and boresome job, the inquirer should note that the cost of re-sizing this warp can be substantially reduced by inserting these five lease bands before the harness is cut from the warp. That is, by the proper manipulation of the harness shades, individually and in pairs, the correct openings can be formed and the lease bands inserted in a few minutes. Even if the warp has a fancy draw, it would pay to tie it over on the warp tying machine to a plain lease, draw on four shades, in order to secure the correct openings.

The accompanying sketch shows the arrangement of the warp and the split rods at the head section of the slasher. The breaker bar "a_1" replaces the lease band "a" which forms the half lease, while the split rods "b_2" and "b_3", and "c_2" and "c_3" replace the lease bands "b", "b_1" and "c", "c_1" of the full leases.

CONTRIBUTOR NO. 4100.

More About the Multiple System.

EDITOR COTTON:

I would like to comment on the article by "C. R. J. (S. C.)" appearing in the November issue of COTTON, criticizing the multiple system and disagreeing with those who advocate it. He is a real fellow, for he is frank, and I believe as he does in many cases, but I wonder if he has had the system or seen it work. Has he seen a job figured out on 20 per cent rest, 20 per cent creeling time and the rest of the time based on end breakage per thousand spindles? Has he seen the creeling based on the pounds per spindle and the weight of roving on the bobbins in the creel?

I am going to admit that the cleaner (who should be allowed 20 per cent rest and possibly 25 or 30 per cent for walking) when piecing ends broken in cleaning, will tend to make a spinner of as good a quality as the one doing the piecing and creeling. This makes one ask the question, which is worth more, and is it worth the difference?

I know, as "C. R. J." knows, that more ends will break on some days than on others and that the roving runs out more on some days. I know that these things will make certain days busy ones, but cannot something be done to trace these causes? Part of it may be due to the humidity, or to the doffing of the roving frames in the card room too early or too late. There are some mills today that are still trying to run low-grade cotton in the belief that it is cheaper.

It is just as he stated, there are some mills installing the multiple system at this time just because some other mill has done so. The system has been installed by some mills before a thorough study of conditions has been made. Yes, the machines have got to be in good mechanical shape and they must be kept in first class condition if the system is to be a success. Overhauling has to be done more often. He states that if the machines are overhauled and kept in the best possible condition a spinner will be able to care for more sides. That is true, but when one of her busy days comes she will have to let some of her cleaning go to be able to keep the ends up on her frames. I believe that the cleaning should always be done on time.

I hope that "C. R. J." does not misunderstand the things I am writing. I want to give him, if possible, an idea of what I think of the multiple system. I am not coming right out and saying that it is the best system, for then I would be throwing away my chance to use some of the old ideas along with the new methods. I will say that a mill can use the new system to advan-

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tage if the machinery is laid out correctly; if the machine conditions are good; the organization on mostly one or two yarn numbers; very little changing of the hank roving or stock; good cleaning instruments; balanced production from each department; using the most up-to-date methods in each department; systems in each department are held to and improved from time to time, and last but not least, giving the employer and employee what they earn and a square deal.

I will give an outline of the multiple system as it was installed in a northern mill—I believe that this mill was the first in the country to install this system. The men who installed the system in the mill first spent two years studying conditions. It is as follows:

Slubbers.

One slubber hand takes care of two frames and no doffer is used.

Intermediates.

On eighteen machines there were three creelers, three doffers, three cleaners and one piecer.

Fine Frames.

On forty-six machines there are two piecers, four creelers, five doffers, four cleaners, two bobbin boys and one flyer cleaner.

Possibly some one would be interested in how the work is done, and then again it might cause lots of —oh, we can't do it that way. Well, here goes. All frames are doffed in rotation, a certain number being doffed and then a rest period. When the frame is ready for doffing, one hand kinks the ends, another lifts the front line of flyers, a bobbin boy puts the bobbins on the front line of spindles and the roving is taken off the spindles and *packed* in the box by the doffers. The bobbin boy puts the rest of the bobbins on the frame and the doffers wind the ends and piece up. The flyer cleaner follows and cleans the flyers by running his hands up and down each side of the flyers.

The cleaners start when the frame is stopped to doff and clean it from top to bottom while the doffers are doffing it. The frames are creeled by the creelers in rotation, so many frames are creeled and they rest awhile. All the pieces are run up on one machine.

On the warp spinning each spinner had twenty-four sides (a few less on filling), and the cleaner had about twice as many sides.

Y. F. (R. I.)

Platt's Metallic Card Clothing Now Available Through Direct U. S. Representative.

In the April, 1927, issue of COTTON appeared a description of Platt's metallic card clothing, and in September, 1928, were published the results of tests run by English and French spinners with this clothing. It has been recently announced that Francis L. Hill, Lexington, N. C., has been appointed sole agent of this product in the United States; and that the clothing is now being installed in several North Carolina mills.

Reeves Variable Speed Transmission.

Reeves Pulley Co., Columbus, Indiana, have issued a circular devoted to the application of the Reeves variable speed transmission equipment in industry, and pointing out its application with regard to modern production requirements.

Lay-Out for 70s on Long and Short Draft.

EDITOR COTTON:

I recently received a request from a friend for my opinion as to a satisfactory lay-out for making 70s combed yarn. Thinking that some reader of COTTON might like to have this information, I am passing it along in the accompanying table. I give figures for both short or regular draft and long draft, as we have both at this plant. It may be interesting to compare the organizations on the two drafts. It will be noted that the same lay-out is used up to the slubber, and that changes in the draft and weight are made from that point on.

ORGANIZATION TABLE FOR MAKING 70s COMBED YARN —LONG AND SHORT DRAFT

Machine	Short or Regular Draft		Long Draft	
	Weight or Size	Draf	Weight or Size	Draft
Pickers	10.5-ounce	4.38	(Same as Short)	
Cards	33-grain	139.20	(Same as Short)	
Sliver Lap	380-grain	1.74	(Same as Short)	
Ribbon Lap	380-grain	4.00	(Same as Short)	
Comber	49-grain	51.49	(Same as Short)	
First Drawing	55-grain	5.34	(Same as Short)	
Second Draw.	60-grain	5.50	(Same as Short)	
Slubber	.50-hank	3.60	.45-hank	3.24
Intermediate	1.64-hank	6.56	1.00-hank	4.44
Fly Frames	6.00-hank	7.31	2.60-hank	5.20
Jacks	16.00-hank	5.33	8.00-hank	6.15
Spinning	70s/1	8.75	70s/1	17.5

If any reader has any question to ask, or any other lay-out to suggest for this yarn, I would be glad to have him write to the "HOW OTHER MEN MANAGE" department of COTTON.

CONTRIBUTOR NO. 4101.

Humidity and End Breakage.

EDITOR COTTON:

In the October issue I suggested to "CONTRIBUTOR NO. 4047" that he close up his rolls where he is using Washburn rolls as a possible means of eliminating some of the roller laps. I notice in the November issue that "CONTRIBUTOR NO. 4071" has given a very good summary of possible causes of roller laps. I would like to state another possible cause for roller laps that is possibly causing more end breakage and roller laps than any other thing, and is also a reason for many men condemning the multiple system, and that reason is—*humidity*, or too high a retain.

In some tests, run by a firm of textile engineers, it was found that the end breakage increases as the regain increases from seven to nine per cent, from below one to above three ends down per thousand spindles. This should be interesting to spinners who are set in their ideas as to humidity, whether it be one per cent or 100 per cent. These figures should prove interesting to men who have spread out their help, or have installed the multiple system. When the work runs bad 80 per cent of those who have installed the multiple system won't blame anything except the lack of cooperation between the spinners, cleaners and creelers, or between the weavers, fixers and battery hands.

I can remember the story told by one man of the overseer he used to work for. The overseer would come in every morning and raise his hand in the air

and rub his thumb and forefinger together; by this method he would decide whether the windows should be opened or closed. This same method was repeated every afternoon. When the work ran bad he would blame it on the cotton they were running at the time. This is all I have to say about the humidity and roller laps, it may help and it may not.

I would also suggest that "CONTRIBUTOR No. 4047" look at the seams on his roller cots. Rough edges caused by a dull knife or too much glue on the cots will give him trouble, maybe a different type of glue would help. Some of his rolls may be running in the wrong direction. I remember a few years ago there was an article in one of the textile papers recommending that the rolls be run against the laps.

Y. F. (R. I..)

Polishing Steel Rings on Twisters.

EDITOR COTTON:

Referring to the question of "CONTRIBUTOR No. 4047" as to what is the best method to clean and polish four-inch steel rings on twisters. The writer believes that for all practical purposes the following method can be safely and expediently used.

Allow the rails with the rings attached to remain in a metal trough for about four hours, the water in the trough containing a mixture of soda ash. The heat of the water must be kept about 160 degrees. After taking the rails out of the water very little drying by hand is required. These rings must be immediately greased with whatever kind of ring grease that is used in the mill.

It will be found that after the above procedure very little if any polishing will be required. If extra polishing is desired this can be accomplished by mechanical means without having to lose time taking out and putting back the rings. A small portable appliance termed a "ring cleaner" is used. This consists of a revolving brush which is inserted in the ring when the rails are in their working positions. The brush is caused to revolve quickly by means of a flexible shaft to which a friction drive is attached at one end, the drive receives its motion from the cylinder of the frame.

In regard to pitted rings, if this condition is found in the slightest degree it is advisable to replace the rings not only for the sake of interfering with the quality of the work, but also for the sake of economy in the traveler expenses.

B. O. B. (GA.)

EDITOR COTTON:

Replying to the questions concerning the best ways to polish 4-inch steel rings on wet twisters; the effect of pitted rings on the running of the work, and what should be done with the rings to keep them from getting rusty when not in regular use. My experience on wet twisting has been rather limited, but I have found that the best way to polish these rings is to chuck them in a small lathe, first inside and then outside clamps, and polish with a fine valve-grinding compound, and then finish with a certain grade of polishing cloth made on the order of an emery cloth, the grade of which is so fine that it is really like flour. I don't recall the trade name for this, but it is handled by the various supply houses and works beautifully for this purpose.

Pitted rings, if the pits go to any depth, will certainly not give good results, the principal trouble being, of course, in the travelers striking these pits and wearing unduly.

When twisters of this character have to stand for any length of time, the rings should be thoroughly cleaned and covered with a neutral grease or heavy oil, one that shows not the slightest trace of acid.

I trust that this may be of some use in solving the problem.

CONTRIBUTOR No. 4074.

EDITOR COTTON:

I note the question of "CONTRIBUTOR No. 4047" with reference to the effect pitted rings have on the running of work on wet twisters, also, a method for polishing the rings.

I would suggest that when he is going to have a frame stand for several weeks that he have a trough made with steam coils in the bottom, and with a total length more than that of his longest ring rail. When he stops his frames if he will take his ring rails off and boil them in a weak solution of sal soda for fifteen minutes, being sure that the rails are hot enough for self drying when taken out, he will overcome his trouble with rusty rings.

Any irregularities in the surface of his rings will have an ill effect on both quantity and quality of the work.

I have obtained the best results in polishing rings by using a paste made of ordinary loom oil and powdered Flowers of Sulphur. If he has a considerable amount of this work to do I would suggest that he make a polishing mop. To do this, take a ⅜-inch spindle and thread both ends of it; on one end place a two inch washer against the bottom nut; cut holes in scraps of sheep skin and place on spindle until about two inches thick; then put on another two inch washer and another nut. It is better to split the sheep skin so that the centrifugal force of the spindle will make it have a brushing effect. This spindle can be placed on a revolving shaft or cylinder running around 1,000 revolutions per minute. This is a rather nasty job, the idea being to keep the mop covered with the paste, the mop being large enough to fit snugly into the ring. I am sure that this method will polish his rings.

E. C. J. (GA.)

EDITOR COTTON:

In reply to the question as to a method of polishing four-inch steel rings on wet twisters, I will say we do not run wet twisters and do not have trouble with the rings rusting, but do find it necessary to polish the rings. Our rings are of the vertical type and are run dry twist with bronze travelers which "bronze" the rings. This means that a thin layer of bronze is deposited on the ring and should be removed.

Our rings are greased each doff and we mix a small quantity of Flowers of Sulphur with the grease. Mix enough sulphur to color the grease a light yellow.

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No matter how bad conditions may be, some men always seem to make money. Here's one reason why.

YOU'VE often heard of the man who succeeds at every job he tackles, every venture he takes. Sometimes he's called "lucky." Usually his luck consists of a common sense grasping of whatever opportunities come his way.

There are many such men in the cotton industry today. While others bitterly complain of slumps and depressions, these men spend their hours figuring out ways and means to make the most of conditions as they exist.

And their efforts are quickly reflected in the activity of the mills they operate. While other mills stand idle and forlorn, theirs hum busily away—turning out production which appears in fat black figures on their books.

In the mills of these men, you'll find no obsolete, old-fashioned machinery. Every new improvement in machine construction which decreases unit cost is quickly adopted, even though it may mean the junking of machinery still in excellent running condition.

For it is only through low production costs that successful mills today make money at prices which are bankrupting competitors handicapped by obsolete machinery.

(Continued on next page)

"Everything He Touches Turns to Gold"

(Continued from preceding page)

Every year, Whitin spends thousands of dollars learning to make cotton machinery more efficient,—more capable of helping you meet and master present-day conditions.

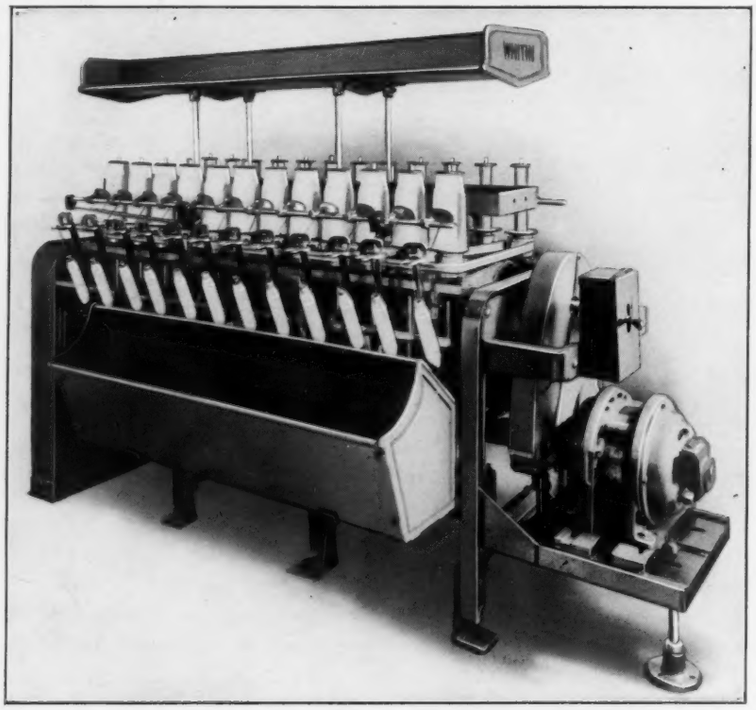
The Whitin Model "F" Even Tension Spooler furnishes an excellent example of the results accomplished. It is flexible, will handle either cotton, silk, or rayon, and is adapted to meet quick-change requirements without costly alterations. A mill, purchasing this machine, preserves the value of its capital expenditure, no matter what product change is forced upon it by market conditions. Moreover, these advantages are obtained with a capital expenditure of only ⅓ to ¼ the cost of winders of comparable capacity.

The Whitin Model "F" Spooler will build an extremely large yarn package in any desired wind, which means less knots, less doffing time in the warper creels—less trouble on the loom.

It has a special tension device through which the yarn must run, which automatically catches all knots, slubs, bunches or weak spots—another factor toward building up loom production. Due to the simplicity of the spooler, adjustments are readily made; and due to the fine way the machine is assembled, repairs are seldom necessary.

There are many other positive advantages, such as the large bottle wind, the method of package building, and the Holt-Seeley spindle.

Whitin Model "F" Spooler (*An Exhibition Frame arranged for Rayon*).



We shall gladly send interested executives detailed information covering the Whitin Model "F" Even Tension Spooler, and many other Whitin improvements in machine construction.

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Charlotte, N. C. ©W M W '29 **Atlanta, Ga.**

This will remove a thin coating of bronze and polish the rings. If the rings become burned because of the lack of grease we take them out of the ring rail and send them to the machine shop. They are polished with very fine or worn emery cloth and oil in the lathe.

If we have a twister to remain idle for two or three days we do not wipe the grease off the rings after the last doff and do not have any trouble with the rings rusting. We keep the humidity in our mill at about 72 per cent.

G. S. D. (GA.)

Weights for Slasher Squeeze Rollers.

EDITOR COTTON:

"CONTRIBUTOR NO. 4084" asks for an opinion regarding the proper weight of squeeze rollers to use on slashers. He says that his sets are 1,960 ends of 15s yarn; that the yarn, after passing through the size, passes between two sets of squeeze rollers; that these rollers weigh 285 pounds each; and that it seems to him that the rollers are too light.

He does not say how much size he is putting on his warps, or wherein they are giving trouble. Providing he is putting on somewhere up to about 18 per cent size, he can make good warps with his present rollers and the aid of some weights.

The sketches herewith show two methods of getting additional weight on the yarn passing under the front squeeze roller of the slasher. Figure 1 is preferable, since it gives a more even pull on the rollers that are not perfectly straight, as is often the case. To make use of this method one needs some weights and a good rope of about ½-inch diameter. The weights should total about 50 pounds to each side of the squeeze roller. It is best to have the 50 pounds made up of two or more weights, so that pressure may be taken off, or added, if desired, in changing from one kind of set to another. The rope is formed into a loop. One end of the loop is hung over the end of the front squeeze roller, and the weights are hung on the other end of the loop. It is, of course, necessary to have an equal amount of weight hung on each end of the front squeeze roller.

In Figure 2 I show a method of exerting pressure on the front squeeze roller by use of a lever and sliding weight. The lever is fixed to the size box at a point between the front and back squeeze rollers. It must be free to move around the fixed point. The sliding weight should be of about 30 pounds and constructed so it can be moved back and forth along the bar to give different pressures. The pressure is exerted on the squeeze roller through a grooved, wooden block as shown. The end of the squeeze roller is free to turn in the groove of this block.

A leather strap is sometimes used to take the place of the sliding weight in Fig. 2. The strap is passed around the lever and under the frame of the slasher. The amount of pressure to be exerted is regulated by taking up, or letting out, a notch in the leather strap. This method is not considered one of the best since the pressure exerted is uneven in cases where the roller is not perfectly straight.

"CONTRIBUTOR NO. 4084" says he would like to know what weights other men recommend, and the reasons therefor. It is recommended that he use his present rollers, and add about 50 pounds of weight to each side of his front squeeze roller, using the method shown in Fig. 1 for getting the additional weight. The reason for this being that experience with similar sets has taught that good warps can be made by such a method. It is known that plenty of pressure, and a well-cushioned front squeeze roller, will have such desirable effects as: (a) Help prevent a glazy appearing warp; (b) squeeze excess size off of the yarn, and at the same time squeeze the size well down into the uneven spaces between the fibers on the circumference of the yarn; (c) help to keep the same amount of size

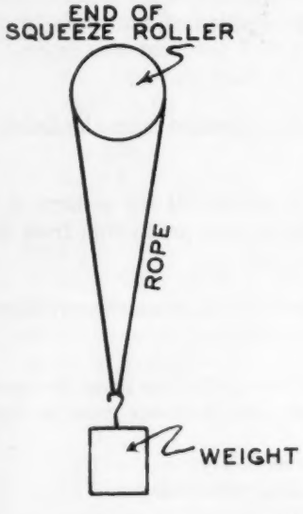

FIG. 1

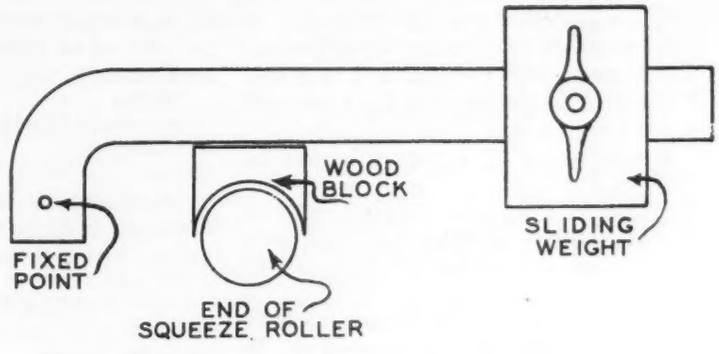

FIG. 2

going on the yarn all along the length of the warp; and (d) help to prevent excessive shedding at the loom.

J. W. C. (TENN.)

Figuring an Organization.

EDITOR COTTON:

A good knowledge of doubling and drafting is very essential, if one wishes to calculate, within a close degree of accuracy, the number of machines necessary at each process, to produce a specified amount of yarn from the spinning frame, and also to calculate how many preparatory machines are necessary to keep a specified number of spinning spindles busy. In other words, to figure an organization.

In order to calculate how many machines are necessary at each process to produce a given amount of yarn, it is obvious that first, accurate figures as to the number of pounds required at each process must be gained.

To calculate how much cotton must be fed into the bale breaker to produce a specified number of pounds of yarn from the spinning frame, we must commence at the spinning frame and work backwards to the bale, increasing the original amount of finished yarn required from the spinning process by the percentage of waste made at the various processes.

The percentage of waste made at the different processes must be determined. The following percentage of waste made at the various processes may be taken as a general average and will be found to be within a fairly accurate estimate of the waste actually made under fair conditions.

Spinning: 2 per cent—1 per cent of this will be clean roving waste and 1 per cent will be clearer waste.

Roving frames: Where three processes of roving are used the waste allowance will be 2.5 per cent.

Drawing frames: When using three processes of drawing 1.5 per cent of waste must be allowed. 1 per cent will be clean sliver waste and .5 per cent will be clearer waste. A .5 per cent clearer waste allowance on the drawing frames should be liberal enough to cover the clearer waste made from the roving frames.

Cards: An allowance of 7 per cent will be made; 2 per cent will be clean sliver, etc., and 5 per cent will be for strips and screen waste.

Pickers: An allowance of 4 per cent must be made.

Tare and moisture: 7 per cent allowance must be made for tare and moisture, of which 2 per cent must be allowed for moisture and the balance of 5 per cent would be tare.

When calculating the production of each machine, it is essential that all waste made be considered. In making calculations for the total amount of cotton to produce a certain number of pounds of yarn, it is quite obvious that it is not necessary to consider the clean waste that would be returned to the pickers. Below is given a list of the various kinds of waste which cannot practically be re-worked in the same number of yarn: Clearer waste at the spinning; clearer waste at the roving; clearer waste at the drawing; strips and screen waste at the card; screen waste at the pickers.

In order to bring out the subject clearly we will consider the following example, following it out in a very detailed manner:

1—How many pounds of cotton in the bale will be necessary to produce 20,000 pounds of yarn from the spinning frame?

2—How many machines at the various preparatory processes would be necessary to produce 20,000 pounds of yarn in a 50 hour week, and what would be the required speed at each process?

To calculate the number of pounds of cotton necessary to produce 20,000 pounds of yarn, we must, as previously explained, begin at the spinning frame and work backwards, adding the amount of waste made at each process to the total amount required, in order to get the production necessary on the previous process.

As 20,000 pounds of yarn is required from the spinning frame, and an allowance of 2 per cent is made for the waste at spinning, we must divide 20,000 pounds by 98 per cent, which will give us the production required from the roving frame.

$$\frac{20{,}000}{.98} = 20{,}408 \text{ pounds of roving required from the fine frames.}$$

The waste made at the slubbers, intermediates and fine frames is considered collectively, and was placed at 2.5 per cent, so that to get the required production of the drawing frames, we must divide 20,408 pounds of roving required by 97.5 per cent.

$$\frac{20{,}408}{.975} = 20{,}931 \text{ pounds of sliver needed from the finisher drawing frame.}$$

As the per cent of waste allowed on the drawing frames is 1.5 per cent, the drawing frame production of 20,931 pounds must be divided by 98.5 per cent to get the pounds of card sliver required.

$$\frac{20{,}931}{.985} = 21{,}249 \text{ pounds of card sliver needed.}$$

To get the required production of the finisher picker we must divide the production of the cards by 93 per cent as an allowance of 7 per cent was made for card waste.

$$\frac{21{,}249}{.93} = 22{,}848 \text{ pounds required from the finisher picker.}$$

As 4 per cent waste is allowed at the pickers, it is necessary to divide 22,848 pounds production from the finisher picker by 96 per cent.

$$\frac{22{,}848}{.96} = 23{,}800 \text{ pounds as the production required from the opener.}$$

We must now divide the production from the opener by 93 per cent, as 7 per cent allowance must be made for tare and moisture.

$$\frac{23{,}800}{.93} = 25{,}591 \text{ pounds required.}$$

Therefore, 25,591 pounds of cotton in the bale would be required, to produce 20,000 pounds of yarn from the spinning frame.

To ascertain just what per cent is lost from the bale to the yarn, we must divide the amount of yarn produced by the amount of cotton required in the bale.

$$\frac{20{,}000}{25{,}591} = 78 \text{ per cent.}$$

This shows that a loss of 22 per cent was made through the various preparatory processes. This is a fair average for carded yarns. Combed yarns would sustain losses running as high as 40 per cent, due to the large amount of waste removed at the combing process.

Having calculated the required production at each process, it is now necessary to calculate what weights and drafts will be necessary for the various machines. We will consider the following example:

What weights and drafts will be required at the various processes, to produce a 20s carded yarn from a 13 ounce lap, allowing 5 per cent at the card, doubling 6 ends each on three processes of drawing, and using 3 processes of roving, doubling two ends on the intermediate, roving and spinning frames?

$$\frac{7000 \times 13}{16} = 5687 \text{ grain lap at the card.}$$

$$\frac{8.333}{5687} = .00146 \text{ hank lap at card.}$$

$$\frac{20 \times 6 \times 6 \times 6 \times 2 \times 2 \times 2 \times .95}{.00146} = 22{,}487{,}611$$

total draft required.

$100 \times 6 \times 6 \times 6 \times 4 \times 5 \times 6 \times 10 = 25{,}920{,}000$ trial draft.

$$\frac{25{,}920{,}000}{22{,}487{,}611} = 1.152 \text{ decrease of draft required.}$$

A decrease will be made on the slubber from 4 to 3.75 draft.

$$\frac{1.152 \times 3.75}{4} = 1.08 \text{ decrease still required.}$$

A decrease of draft will also be necessary on the intermediate, to balance the slight remaining difference.

$5 \div 1.08$ 4.63 draft to use on the intermediate.

$$\frac{5687 \times .95}{100} = 54 \text{ grain sliver from the card.}$$

$$\frac{54 \times 6}{6} = 54 \text{ grain sliver from 1st, 2nd and 3rd drawing.}$$

At this point it is necessary to reduce the grain sliver per yard, to hank sliver per yard. To do this divide the constant 8.333 by the weight of the drawing sliver in grains.

$$\frac{8.333}{54} = .154 \text{ hank sliver from the drawing.}$$

$.154 \times 3.75 = .577$ hank from the slubber.

$$\frac{.577 \times 4.63}{2} = 1.33 \text{ hank from the intermediate.}$$

$$\frac{1.33 \times 6}{2} = 3.99 \text{ hank from the roving spindle.}$$

$$\frac{3.99 \times 10}{2} = 19.95\text{s yarn from the spinning.}$$

The next procedure would be to determine the speeds at the various processes. We shall assume, in this instance, that the machines are speeded as follows:

Spinning spindles	9,000 r.p.m.
Roving spindles	1,200 r.p.m.
Intermediate spindles	1,000 r.p.m.
Slubber spindles	600 r.p.m.
Drawing frame 1⅜-inch metallic roll	300 r.p.m.
27-inch card doffer	9 r.p.m.
Finisher picker, 9-inch lap roll	6.5 r.p.m.

In order to calculate the production of the roving frames and the spinning frames we must determine just how much twist shall be put into the roving and yarn. Below are the twist multipliers used in this case:

Warp yarn	4.75 twist multiplier.
Roving frame	1.2 twist multiplier.
Intermediate	1.1 twist multiplier.
Slubber	1.0 twist multiplier.

The rule to find the turns of twist per inch put into the yarn and roving is, multiply the square root of the hank or counts by the twist multiplier.

To calculate the production of the spinning frame, an allowance of 10 per cent loss in production will be used in this case. There is no allowance made for spindle slippage as it is assumed that the spindles would be banded under proper tension. However, the 10 per cent allowance is large enough to allow some slight irregularities due to the foregoing cause.

$\sqrt{20} = 4.47 \times 4.75 = 21.23$ turns per inch in 20s warp.

Assuming that we are operating on a 50 hour week, the production of the spinning frame would be found as follows:

Multiply the r.p.m. of spindles $\times$ the number of minutes per hour $\times$ the number of hours per week $\times$ the per cent of production, and divide this result by the turns per inch in the yarn $\times$ inches per yard $\times$ yards per hank $\times$ counts being spun.

$$\frac{9000 \times 60 \times 50 \times .90}{21 \times 36 \times 840 \times 20} = 1.913 \text{ pounds per spindle per week.}$$

To determine the number of spinning spindles required to produce 20,000 pounds of yarn per week, we must divide the pounds of yarn required, by the production per spindle per week.

$$\frac{20{,}000}{1.913} = 10{,}454 \text{ spinning spindles required.}$$

To find the number of frames required we must divide the total number of spindles by the spindles per frame. As spinning frames are built in 16 spindle units, we will assume we have frames of 256 spindles in this case.

$$\frac{10{,}454}{256} = 40 \text{ frames plus 214 spindles.}$$

Therefore, a total of 41 frames would be necessary. From previous calculations, it is desired to pro-

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duce 20,408 pounds of roving from the roving frame, and a 3.99 or 4 hank roving is being made at the roving frame.

$\sqrt{4} = 2 \times 1.2 = 2.4$ turns per inch in roving.

Referring to the table of speeds, we find the spindle speed of the roving frame to be 1200 r.p.m.

$$\frac{1200 \times 60 \times .50}{2.4 \times 36 \times 840 \times 4} = 6.2$$ pounds per spindle per week.

On the roving frame a fair allowance for stoppage due to doffing, cleaning, etc., would be about 10 per cent.

$6.2 \times .90 = 5.58$ pounds per spindle per week.

To find the number of spindles necessary to produce 20,408 pounds of roving, we divide the required production by the production per spindle per week.

$$\frac{20{,}408}{5.58} = 3657$$ roving spindles required.

We will assume a frame of 160 spindles to be used in this case.

$$\frac{3657}{160} = 22$$ frames plus 137 spindles, or 23 frames required.

Theoretically, there will be no waste made on the slubber or intermediate, as it is accounted for under the per cent of waste made at the roving frame. Therefore, we take the same number of pounds for the intermediate and slubber calculations as were used for the roving frame.

As we are making a 1.33 hank roving on the intermediate, the turns per inch will be $\sqrt{1.33} \times 1.1 = 1.265$ turns per inch required.

Referring to the table of speeds, we find the intermediate spindle speed to be 1000 r.p.m. An allowance of 15 per cent stoppage, for doffing, cleaning and oiling should be made on the intermediate.

$$\frac{1000 \times 60 \times 50 \times .85}{1.26 \times 36 \times 480 \times 1.33} = 50.32$$ pounds per spindle per week.

To get the number of spindles required, divide the total production required by the production per spindle per week.

$$\frac{20{,}408}{50.32} = 405$$ spindles required.

Three frames of 136 spindles each would give us a total of 408 intermediate spindles, which would answer the purpose very well in this case.

The slubber spindles are making 600 r.p.m. on .577 hank roving, using a twist multiplier of 1.0. An allowance of 25 per cent for cleaning, oiling, doffing, etc., is allowed.

$\sqrt{.577} = .758 \times 1.0 = .758$ turns per inch.

$$\frac{600 \times 60 \times 50 \times .75}{.76 \times 36 \times 840 \times .58} = 101.25$$ pounds per spindle per week.

Divide the required production per week of the slubber, by the pounds produced per spindle per week, to get the required number of the slubber spindles.

$$\frac{20{,}408}{101} = 202$$ slubber spindles required.

Three 68 spindle slubbers would be just right to produce the necessary quantity of roving per week in this case.

We must now find how many deliveries of drawing will be necessary to produce the required amount of sliver, which is in this instance, 20,931 pounds. Referring to the taole, the front roll speed is given as 300 r.p.m., using 1⅜-inch metallic rolls. The silver weighs 54 grains per yard. An allowance of 20 per cent for stoppage must be made.

It may be well to call attention to the fact that the actual diameter of a metallic roll is never used in production calculations, as the depression of the sliver caused by the flutes, produces a longer length of stock per revolution of the roll than would be shown if the actual diameter of the roll was used. The working diameter of the roll is taken, and, assuming that we have a roll of 32 pitch, the actual working diameter of this roll would be 1.83-inches.

The production calculation on a drawing frame varies somewhat from the formula used on the roving frames, and is as follows:

Multiply the r.p.m. of the drawing roll $\times$ its circumference $\times$ the number of minutes per hour $\times$ the number of hours run per week $\times$ the per cent of production $\times$ the weight of the drawing sliver in grains, and divide this result by the number of inches per yard multiplied by the number of grains per pound.

$$\frac{300 \times 1.83 \times 3.1416 \times 60 \times 50 \times .80 \times 54}{36 \times 7000} = 887$$ pounds per delivery.

By multiplying the total number of pounds of drawing sliver required per week by the number of drawing processes being used and dividing this by the pounds of sliver delivered per week per delivery, we get the total number of deliveries required for all processes.

$$\frac{20{,}931 \times 3}{887} = 70.7$$ deliveries required.

Therefore, 12 heads of 6 deliveries per head would be required to produce the necessary amount of sliver.

The total production per week required from the cards is 21,249 pounds of sliver. The doffer is 27 inches in diameter and makes 9 r.p.m. Referring to previous calculations, the sliver weighs 54 grains per yard. An allowance of 7 per cent is made for loss of production.

To get the production per week from the cards, multiply the r.p.m. of the doffer $\times$ its circumference (making proper allowance for the extra diameter of the doffer, due to the clothing, which is ⅜-inch thick) $\times$ the number of minutes in one hour $\times$ the number of hours run per week $\times$ the per cent of production $\times$ the grain sliver per yard, and divide this result by the number of inches per yard $\times$ the number of grains per pound.

$$\frac{9 \times 27.75 \times 3.1416 \times 60 \times 50 \times .93 \times 54}{36 \times 7000} = 469$$ pounds per week.

To find the number of cards necessary to produce 21,249 pounds of sliver per week, divide the required production by the number of pounds delivered per

week per card.

$$\frac{21,249}{469} = 45$$ cards necessary, with a doffer speed of 9 r.p.m.

The number of pickers required to produce 22,848 pounds of lap must now be found. We will assume the lap roll is making 6.5 r.p.m. The lap weighs 13 ounces per yard, and an allowance of 10 per cent for stoppage is made.

To find the production per week per picker, multiply the r.p.m. of the lap roll × its circumference × the minutes per hour × the hours run per week × the per cent of production × the weight of the lap made in ounces and divide this result by the inches per yard × the number of ounces per pound.

$$\frac{6.5 \times 9 \times 3.1416 \times 60 \times 50 \times .90 \times 13}{36 \times 16} = 11,199$$

pounds per week.

Divide the total production required by the production per machine per week to get the number of machines necessary.

$$\frac{22,849}{11,199} = 2$$ finisher pickers necessary.

There will of course be the same number of intermediate and breaker pickers required.

CONTRIBUTOR No. 4129.

A Method for Picking Lease to Re-size Warps.

EDITOR COTTON:

I noticed in the September issue of COTTON a request for information on how to pick a lease on a warp of 5,000 ends; the warp being too soft for weaving and to be re-sized.

In the first instance I imagine that the warp has been drawn in the harness from a comb, being a slashed warp, and not from an end and end lease as a dressed warp would be.

If the warp is still in the loom, which I doubt, and is drawn in plain weave on four harnesses and is woven two lifts; i.e., the ends are drawn 1-3-2-4 and the harnesses lifted one and two as one lift and three and four as the second lift, I would strain up a sufficient length of yarn through the harness and reed to allow for manipulation and then strike up the back two harnesses, placing in the lease thus struck a rod; then depress the harness and lift up the first two harnesses, placing in the second lease another rod; then run a cotton band in place of the rods and tie the band. It would assist further operations if, before putting in the band, the lease rods were put in close to the beam, so as to allow a fair length for starting up in the slasher, using the back lease for the slasher dividing rod.

If the warp has been cut out of the loom without any lease bands, place the beam in a twister, or any suitable stand, so that the beam can be held taut. Pull off sufficient yarn by placing the yarn between two clip rods, rolling the yarn around the rods two or three times; then have a man strike a fine loomer's comb through the warp web close to the beam; put on the cap and roll the yarn around the comb and cap and pull off about one yard, keeping the yarn taut; then strike in another loomer's comb, tieing up the ends of the warp; weigh the beam to stop it slipping around and proceed to pick the lease as follows:

Use a tool made from a crochet needle, one with a flattened finger piece is most suitable, grinding off the hook and shaping to a needle point. Leaning or sitting over the comb facing the beam, use the picker to pick the ends straight from the comb, using the left thumb and middle finger to catch the ends under and over alternately; when the fingers are full, place a cotton band in each lease and proceed in this manner all the way across the warp until it is complete. There is generally some employee who is capable of picking a lease in the manner described. A good man could do this inside of one hour. It is worth the time spent for the success of the job depends on the straightness of the ends.

I have often found it convenient, and in some mills it is compulsory, to leave the lease bands in the warp (where the warp is drawn in from a lease) until the loom is started.

If the mill has a leasing machine I would put the warp in this machine and finish the job quickly.

To refer back to the warp in the loom, if drawn as a twill, sateen or dobby, striking a lease by means of the harness becomes more intricate. I would suggest studying the draft and harness plans to see if a lease could not be struck, or even a resemblance of one, be-

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fore cutting the warp out, especially on pattern or colored stripe warps.

I am hoping that the above will be of some assistance, and I would like to hear from the inquirer through these columns as to how he fixed up his job. I would also like to hear whether the trouble was due to soft sizing, or is it due to inferior staple? If it is the latter no amount of re-sizing will make a first class cloth and the saving in buying inferior cotton is lost in production.

C. W. (CANADA).

Budget Control in Cotton Mills.

(*Continued from page* 388.)

Repairs and Maintenance.

This is probably the most difficult of all divisions to establish accurately, and I very much doubt if any mill will have the good luck to come very close to a correct standard the first time one is set.

Unless some form of order system in the shop has been maintained, it will be very nearly impossible to get correct data. If time cards are available and accurate for the past year, it will be possible to dig up considerable data as a guide toward a standard budget control figure. When the best possible figures are assembled under the proper departments, these figures are divided by the department production and a cost per pound standard budget figure found.

Great care must be used to see that plant additions, reconstruction and other capital charges are not included in any of these figures. All charges not strictly repairs and maintenance, must be excluded if we are looking for accurate results.

You will notice right away that the overseers are watching the repair bill much more closely than ever before, and all large items will be looked up and the mechanical department will find it necessary to have a very good reason for the charge which an overseer thinks is excessive.

Don't be discouraged if this item does not work out as nicely as the others. It is not much of a trick to find out how many brooms, brushes or crayons are consumed in a week, but it is quite another thing to figure out how many parts are going to break or wear out weekly. Keep at it, change your standard every time you have enough evidence and information to justify it. Each change will bring it nearer to a correct figure.

Waste.

To my mind this is the most interesting of all the budget figures and one that gets a good deal of my attention.

Standards for the budget waste control are obtained from the records of past months just the same as the figures for the other items.

What is the value of waste? Is it the few cents that it can be sold for, or is it the difference between the cost of the raw material plus all the labor, to point where the waste was made, minus the amount that you can sell it for? Think it over; it's an interesting problem and a serious one also.

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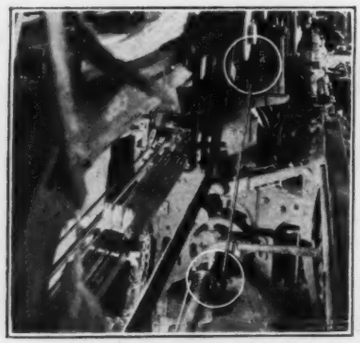
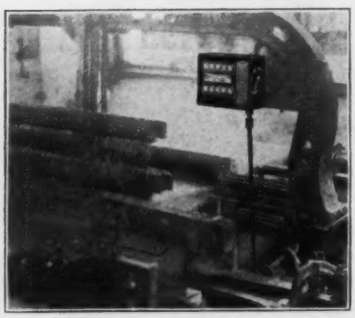
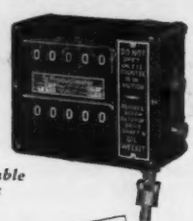


Productimeter Pick Counter applied to Stafford Loom in a large cotton mill.



Productimeter Double Deck Loom Pick Counter on a well known loom, showing cam shaft drive with connecting rod as desired for efficient operation.



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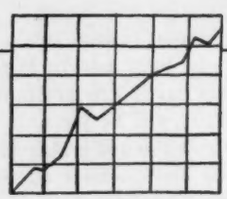

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THE SPEEDOMETERS OF INDUSTRY

There are three reasons for waste above a normal amount. First, a lower and poorer grade of stock than has formerly been used for the same work. Second, a mechanical fault in the machine, such as worn parts, faulty settings, etc. Third, speed greater than the material can stand. The first cause is probably beyond the control of the overseer or even the superintendent, but it may possibly be controlled and reduced by a slight reduction in speed. Care must be taken to check up and see how the production loss and labor cost offsets the gain in waste by speed reduction. There is very little excuse for the second cause of waste, as a mechanical fault, in excess of normal running conditions, should have immediate attention.

The third item in the list is speed. Speed is a good thing, but may be sadly overdone on many kinds of material. Watch the waste figures at the same time you start boosting speeds. Get all you can in sixty seconds, but don't overdo it at the expense of quality. Excessive waste means poor quality. Make your operatives realize that the quicker they report a machine making excessive waste the better you like it, and the battle is half won. Then do your part and follow up any report that an operative gives you so that he knows you value his interest.

If you have had proper waste reports in the past, it will be a very easy matter to arrive at correct standards for the budget control.

Handling the Budget.

The budget control figures for each department should be assembled on a single sheet in a form as shown in Fig. 3, that meets the requirements, with a good wide column for "Remarks," and each week's figures added as soon as they are made up. A fiber board cover of light weight, should be supplied to keep each department's sheets in. These sheets should come out weekly, at the earliest possible moment, so that the overseers may see them when facts of the week before are fresh in their minds. A master budget, being duplicate sheets in one book, for use of the executives, may be made up if the conditions warrant it. I strongly recommend it.

Changing Standards.

Most standards should be based upon previous performance, unless there is very good reason to figure it otherwise. If, however, a standard is put in that is lower than it seems possible to reach, after a fair trial and a careful study of the conditions involved, that standard should be made higher. If the department heads find that there is a willingness on the part of the management to raise a standard when necessary, as well as to lower one, the cooperation and interest will be much greater.

Before making any attempt to install budget control, the subject should be carefully studied by someone in the organization who will be able to present and sell the idea to the overseers and second hands. It is perfectly possible to install the system on a "take-it-or-get-out" basis, but it would be very poor policy to do so. Most of the lack of cooperation is due to a

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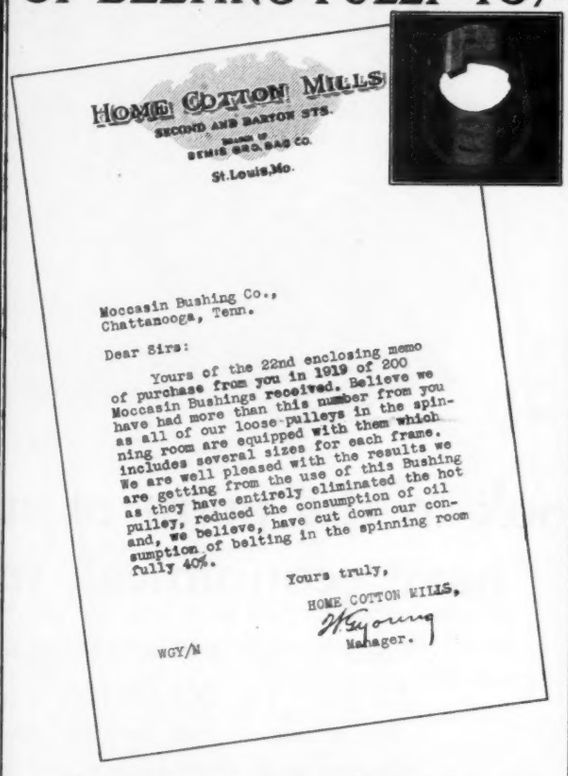
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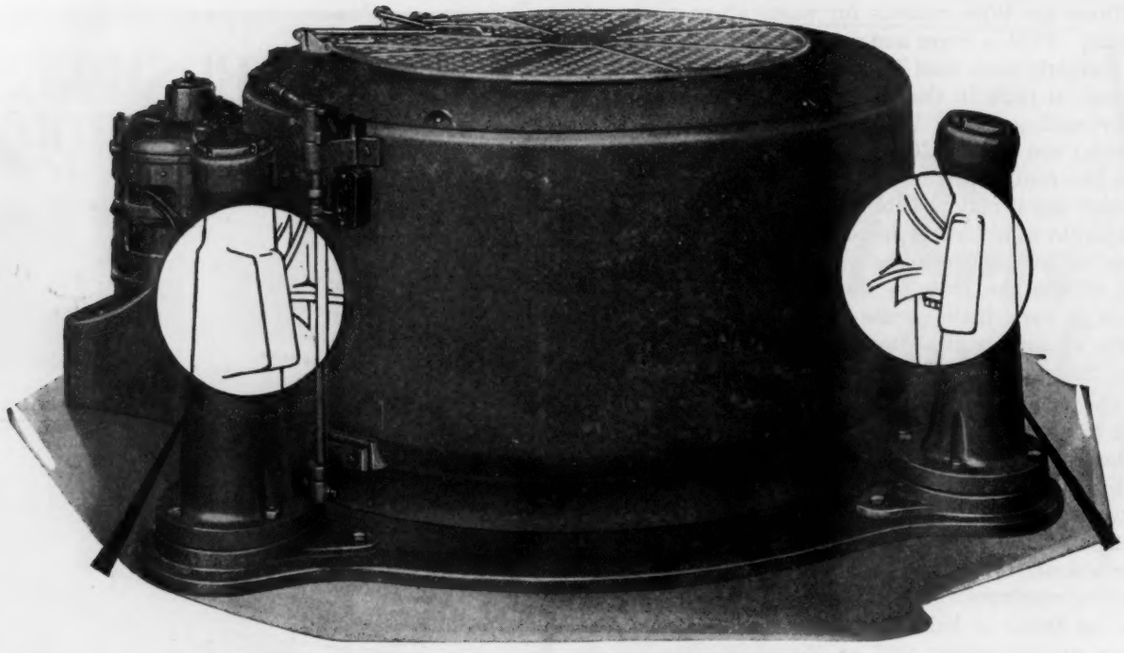

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lack of knowledge of the budget control system. It must be remembered that this idea is probably an entirely new thought to 90 per cent of the overseers, and it needs a carefully planned educational and selling campaign to put it across successfully.

After the budget is started, talk over the different points of his budget with each overseer weekly. Point out, in the manner best suited to the particular man, where improvements must be made, at the same time, don't ever pass up a chance to give credit for a better showing than has been made in the past. This question will naturally enough come up among the departmental heads, "Well, what do I get out of this?"

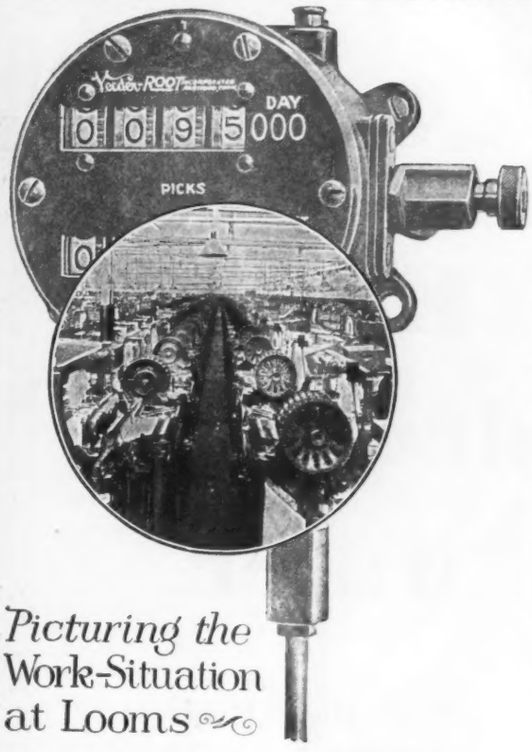
What any of us get out of any job is the privilege of running that job at the greatest possible efficiency with the tools we provide or that are provided for us. The budget control is simply another tool furnished by the management to make the departmental heads' jobs more perfect. We'll admit all of that and then admit that the average overseer is human, and while he likes to make all the improvements that he can, he likes to get credit for it now and then in the form of a little extra in the pay envelope. If at the end of a given period a man who has made a substantial saving in the expenses of his department should be rewarded, this rewarding looks best in the form of a bonus at the end of a given period. If an overseer has kept within, or lowered his costs, below the budget standard for two three-month periods, it would then be a proper time to award a bonus. When a department head is engaged his salary covers the work that he is called upon to perform to keep that job, for which he was hired, going properly. If, however, a mill through its treasurer or agent sees fit to make a present of a bonus to an employee for one purpose or another, such as extra efficient management, it is a fine thing, and always appreciated. It has the advantage of being recognized as a temporary matter and does not become an added fixed expense as an increase in salary would be.

Charge-Backs.

Here is a new but very necessary part of a properly installed control system. A charge-back is a means of placing against the proper department any expense above normal in a given department for which another department is responsible.

This charge-back is a form authorizing the accounting department to charge the excess expense, as listed, against a given department and credit the department which has performed the work. The reason for the charge must be carefully explained and the method of figuring shown on each charge-back. It is of course signed by the departmental head claiming the credit. The overseer against whom the claim is made must sign it with his approval or refuse to okeh it and state his reasons, in writing, on the sheet. It next goes to the superintendent, who signs it if the charge has been accepted and passes it on to the accounting department. In case of a refusal to accept the charge the superintendent must review the case and give a decision on the matter which is final.

It should be possible to put in charge-backs against



Picturing the Work-Situation at Looms

On the dial of a Veeder-Root Counter you see the work-situation at any loom. You see what's right or wrong with the picture—whether the loom keeps up a profitable production and high average running-time.

The weaver's work is pictured to you in the only way that *counts:*—in recorded *output.*

Keeping the record in *sight* keeps it HIGH. It keeps your weaver satisfied that he's paid according to what he does. It keeps the money-incentive always before him.

Veeder-Root Textile Counters can be applied to every machine and work-situation in a mill. They will help you to solve any production-problem or labor-problem. Write for Textile Counter Booklet "C," or ask for a trial of the Counters.

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Little drops of water

that make a mighty difference

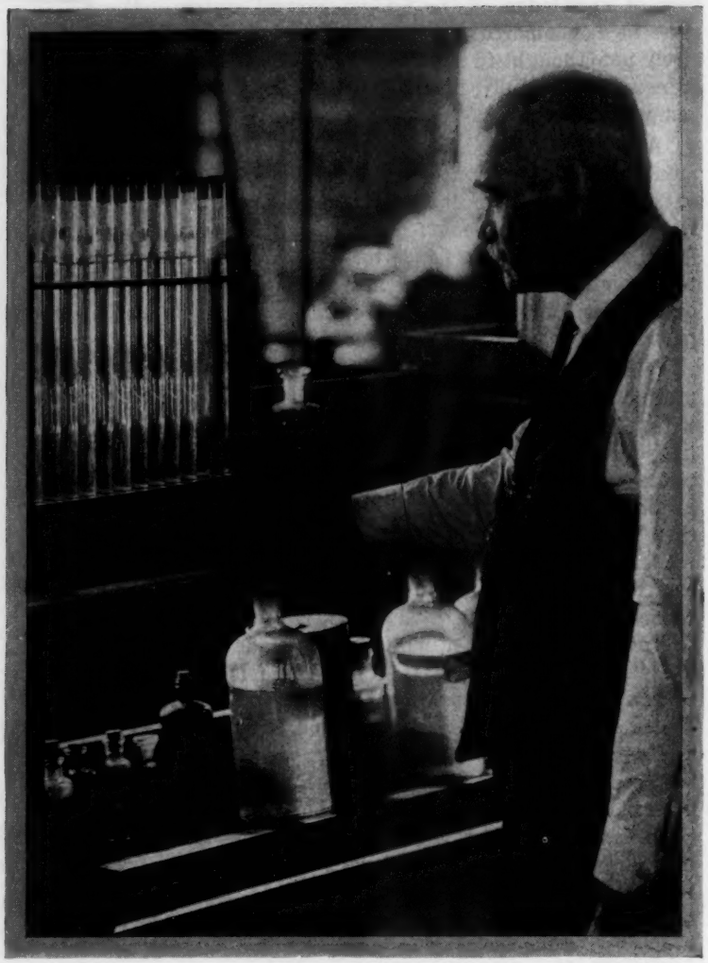


Photo by Ellis

IN a du Pont Rayon plant water becomes a superfine ingredient. The ordinary purification system of water for drinking purposes is not sufficient; the highest quality rayon demands the purest water that chemical research and control can provide.

Each du Pont Rayon plant maintains a water purification system capable of supplying a fairly large city. At Old Hickory, Tennessee, alone, more than three billion gallons of purified water are consumed every year in the manufacture of du Pont Rayon. Thousands of dollars are spent in this one detail of chemical control.

At the Old Hickory plant, for instance, "Daddy" Lee has spent years in maintaining a scrupulous control of every drop of water that enters into the making of du Pont Rayon yarn. He and his assistants test specimens of purified water every hour of the day. "Daddy" Lee is proud of his responsibility. He is guarding the reputation of his plant and the quality of du Pont Rayon. In every du Pont Rayon plant the same faithful scrutiny maintains the chemical purity of every drop of water. And in every other step in the making of du Pont Rayon, alert minds and keen eyes maintain the most exacting control.

Such standards of control make a difference that goes far beyond mere appearance; extends to the ultimate consumer's use of the goods, and is reflected there in a more enduring satisfaction. Quality at the start makes for quality to the very end. Du Pont Rayon Company, Inc., 2 Park Avenue, New York City.

DUPONT RAYON

REG. U.S. PAT. OFF.

the purchasing department, master mechanic, superintendent, or even the agent or treasurer if they are responsible for red ink showing in the budget control figures.

As an example, we will assume that the slashing department has delivered to the weaving department a number of warps that have many more crossed ends than usual. At the end of the week the production is lower than usual and on looking over the loom efficiency sheets it is found that a number of looms show a lower efficiency than others on the same quality. It is found upon further investigation that these warps were the ones that had the badly crossed ends and that the weavers could not keep the looms running as usual on that account.

The difference between the average efficiency of these looms and the efficiency for the week in question is figured out and reduced to dollars. This figure now represents what the weaving department lost due to poor warps made on the slashers. A charge-back is made out, with the method of figuring and all details shown, signed by the weaving overseer and sent to the slashing overseer for acceptance and then on to the superintendent for approval.

While the charge-back is a necessary part of a well-balanced budget control system, it must be handled with judgment, and not carried to extremes. I recently had one department put through a charge against another department for less than seventy-five cents. This charge was absolutely correct in every detail, but it was explained that the time of four or five people, who would be obliged to handle it, was worth much more than that amount.

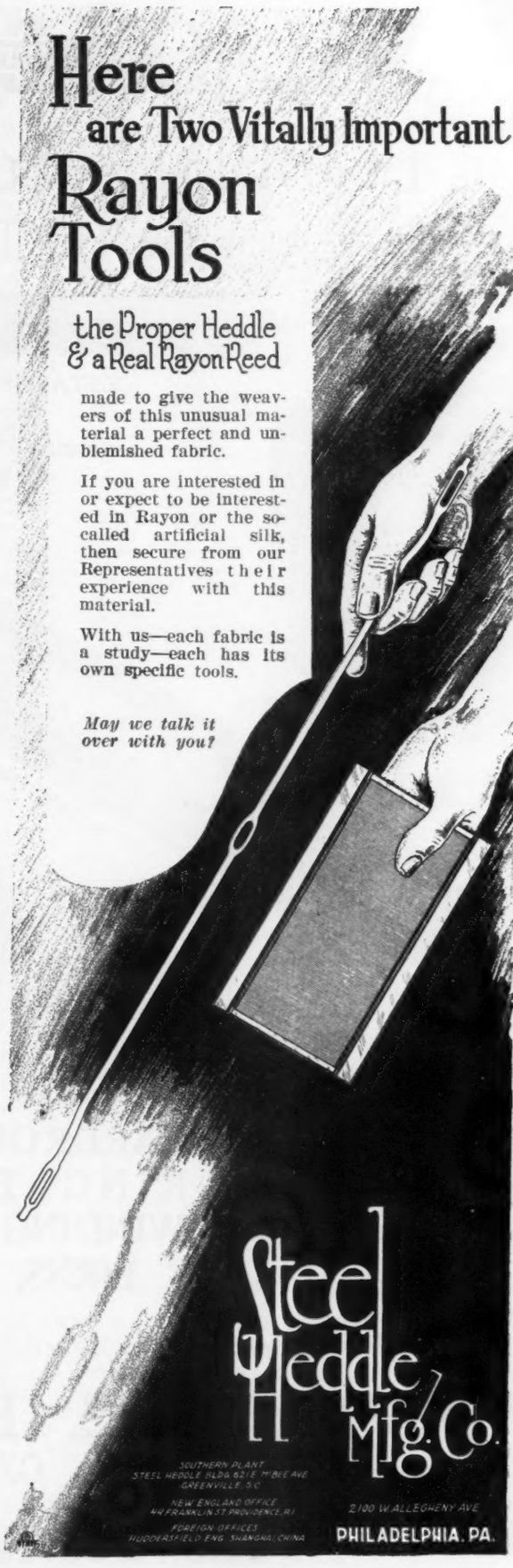
Don't try the budget control system unless you are prepared to go through with it and make it go for the first twelve months. It must be someone's pet, and that one must keep it going until it is fully appreciated. Then you couldn't throw it out if you wanted to do so.

N. E. Mills Try New Manufacturing Methods.

(*Continued from page* 405.)

erage payroll. It is not proposed to speed up production at the risk of injuring the quality nor to measure a single operative's work by the number of machines he attends. The plan as it has been worked out in other mills develops opportunities to increase the output very materially by giving the greatest measure of assistance in departments where neglect in attendance or in the speed of operation leads to many imperfections in work in departments further along in the mill.

For example, it was found in one plant outside of New Bedford that by adding two preparatory machines in the picking and carding departments the quailty of the yarn was so much improved that additional work and additional production in those departments were sufficient to make very substantial gains in spinning and weaving costs. In another case it was found that by making what seemed to be minor changes in slashing and warping departments weaving defects were so quickly overcome that additional speed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made to give the weavers of this unusual material a perfect and unblemished fabric.
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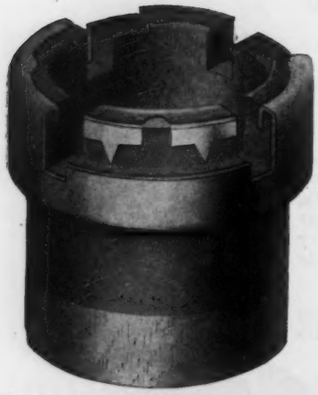

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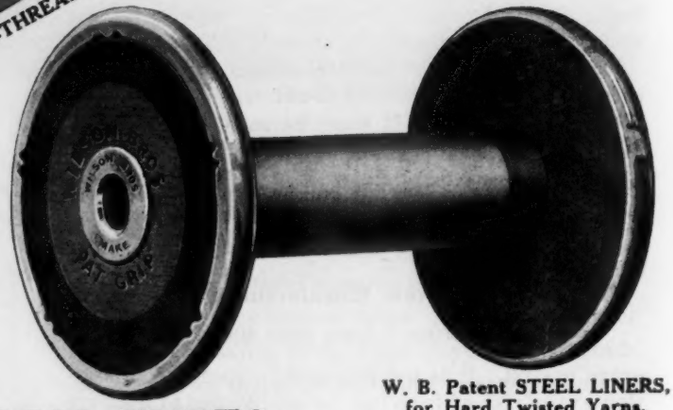

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could be maintained on the looms at a lighter exercise of human energy than before.

It is expected that the changes will not be completed within a year at least in all the mills in New Bedford and the engineers already engaged on the work admit that because of the variety and diversification of product it will be many months before the final results can be tabulated.

The diversification of output is not so great in most of the southern mills as in the fancy goods mills in New Bedford. In the same plants silk, combed yarns, and fine and coarse denier rayons may be running through and the weaving room may be equipped with machinery to produce anything from a plain fabric to the finest fancy Jacquards. The best results that have been obtained under the new plan has naturally been in mills where the volume of output is largely of a staple character as in a very substantial number of southern plants.

A Layman's View of the Textile Industry.

(*Continued from page* 380.)

mercial life there has come a rivalry for reduced expenses in the wrapping and shipping of the various commodities, and substitutes have been made that in a large measure have supplanted the use of cotton textiles. Other fields have done the same thing. Had it not been for the automobile industry, which developed independent of the textile industry, cotton textiles would have been worse off than they are today.

We Lack Proper Research.

Nearly all industries have expensive laboratory and research departments that are continually striving to extend the uses of their products; not only new uses, but new fields, because of the fact that the textile industry is so scattered and distributes its products in so many various ways, there seems to be no organized effort along this line by the industry as a whole. Whatever effort there is, is transferred to the consuming agencies of the mills.

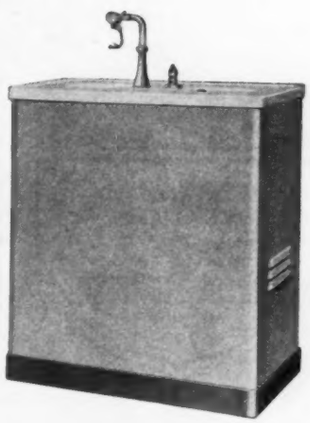
Thus there seems to have grown up in the industry a lack of consumptive desire on the part of a great many former users of textile products. It seems that it lacks the dynamic power of convincing the world of the merits of its wares. There is an old adage that says "He who crieth not his wares in the market place taketh them home." It seems that there is no voice proclaiming to the world the merits of the cotton textile products.

What About This Complex?

Lastly there seems to me to be an inferiority complex that has developed within the industry which means this: "We cannot reduce our capitalization, we cannot reduce our overhead, we cannot have group consciousness, we cannot increase consumptive desire, we cannot cry our wares in the market place, because our distribution is so varied; we cannot increase new uses, we cannot revise our selling methods, we cannot help our present conditions, we cannot eliminate night work; we must simply wait and we will finally work

Chicopee Manufacturing Corporation

says, "Our Frigidaire Water Coolers have *proved most satisfactory and efficient"*



Frigidaire Water Cooler, Model No. 40-D . . . a complete unit which cools 18 gallons of city water per hour. Accommodates 60 to 70 factory workers.

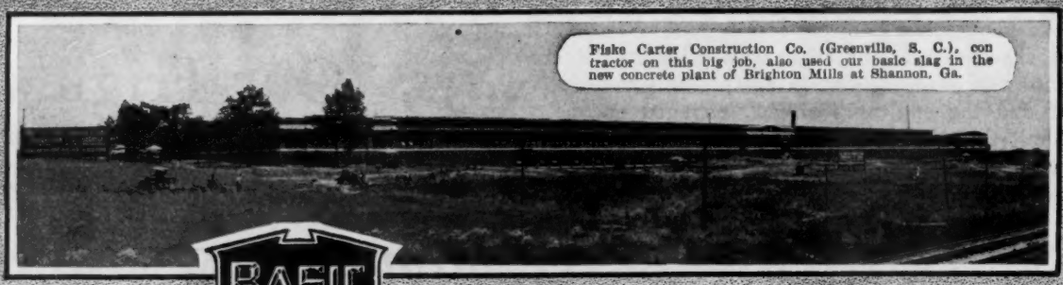
LEADING Textile Mills everywhere are turning to the Frigidaire Water Cooler to provide properly cooled drinking water for employees. And they are doing it because Frigidaire *saves them money* by eliminating ice bills . . . ends completely the bother and expense of servicing ordinary ice coolers . . . increases efficiency of employees by giving them drinking water delightfully refreshing, properly cooled, always the same *regardless of room or outside temperature.*

The Chicopee Manufacturing Corporation of Georgia, located at Gainesville, is another addition to the growing list of Textile manufacturers who are finding that Frigidaire Water Coolers *pay real dividends* in actual money saving, and in health and better work. Read what E. A. McCormick, Superintendent, says about them:

"*We have two compressors and bubbling fountain attachments. These have proved most satisfactory and efficient. It is a great pleasure to recommend them.*"

Let us send you the facts about Frigidaire Water Coolers . . . why they will pay you a profit in *your* mills . . . how our complete line offers you exactly the equipment best suited to your needs. Write for complete information. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, O.

FRIGIDAIRE
PRODUCT OF GENERAL MOTORS



Fiske Carter Construction Co. (Greenville, S. C.), contractor on this big job, also used our basic slag in the new concrete plant of Brighton Mills at Shannon, Ga.

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Slag Concrete Buildings are fire proof! rat proof! vermin proof

Ideal working conditions! Effective fire protection! Permanence! These three essentials of modern mill construction are obtained in concrete through the use of crushed and screened Basic Slag.

Fire safety because slag in itself is fireproof! *Ideal working conditions* in that slag concrete is proof against rats, vermin and fire! *Permanence* through the close kinship, the perfect bond, between basic slag and Portland Cement.

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Leadership!

Leadership in any line places a direct responsibility upon those who maintain this position. Integrity, strict adherence to highest standards of both merchandising and manufacturing have always characterized the leadership of this company in the Spinning Tape field.

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World leaders in the production of spinning and twisting tapes of all kinds of cotton machinery.

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LOOM HARNESSES

Our loom harnesses are critically inspected not only during process of manufacturing, but also when ready to ship, when any harness, whch is not up to the high standard we require is thrown out. Every harness which you receive from us is therefore as near perfect as it is possible to make it, and the quality is always the same.

G
TRADE MARK

GARLAND MFG. CO.
SACO, MAINE

out. We have been in this condition before."

Moses, leading the children of Israel out of bondage, had more trouble than the cotton manufacturers ever had and he was continually in touch with the Lord, and finally in desperation, he gave up trying for himself and decided to pray to the Lord to help him out and the Lord answered his prayer by saying: "Get up, Moses, and tell the children to go forward." I infer from this statement that He meant that Moses and his followers had not anything like exhausted their resources and unil they had done this there was no use for Him to intervene.

I think all of these statements that I have made with reference to the cotton manufacturers are absolutely vicious and untrue. I think they are sitting and whining in the desert when the Promised Land is just ahead. I believe that every difficulty indicated can be worked out diplomatically and judiciously for the economic and social welfare of all connected with the industry; but I also think it is going to take some nerve and some determination and some vision and some time to do these things.

Inasmuch as I have been so frank in some of the statements that I have made in this article, I shall remain frank to the end and state that I believe from current comments that the two most impelling readjustments that demand early consideration are elimination of night work and the revision of the distributing phase of the industry.

Dyeing Sulphurs in Circulating Machines.

(*Continued from page* 382.)

onto the yarn. This is one plausible explanation of why this dye needs such a small amount of salt in a closed machine.

So it might be with sulphur colors, apparent solution in a beaker means to a closed machine dyer very little; what he needs to know is the size of these molecule clumps and how they act when salt is put into the bath. Such a machine for seeing molecules is no idle dream of the future. It already exists, if it will not show single molecules it certainly goes down far enough to show little groups of them. This instrument has been in regular use for years; its name is the Ultra Microscope.

We are all of us accustomed when we get home, (and contrary to popular belief, dyers do have homes and sometimes are to be found in them) to tuning our radios to certain wave lengths. We are so used to it nowadays that we think nothing of it. Similarly, once the first shock is over, we would be greatly benefited by a statement by the manufacturers that such-and-such a dyestuff, when properly dissolved, gives molecule clumps of a certain size. Even if that information did not mean anything to us individually, it would at least give the dye manufacturer a standard for him to maintain.

Moreover, by testing those dyes which are known to be satisfactory for closed machine dyeing we would know the limits of size of these assumed molecule clumps and this would make easier the grading of new dyes. As it is now, the testing of sulphur colors is

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"SHEET METAL PRODUCTS FOR INDUSTRIAL PLANTS"

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GIVING METHODS AND PRINCIPLES OF HANDLING PRACTICAL COST PROBLEMS.

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is holding the lead among textile mill scrubbing powders. A test on your floors will SHOW the difference, so why not send us a trial order to be shipped on our SATISFACTION OR NO CHARGE guarantee?

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very difficult, more so than with any other type of color, in fact to gauge the comparative dyeing quality of a sulphur color correctly is somewhat as difficult as measuring the different qualities of two samples of coffee.

There are, of course, many tests which we can make: first is the classification into direct or leuco dyeing; secondly, by repeated trials we can arrive at some knowledge of the correct ratio of dye to sulphide. From that we can measure the amount of insoluble matter, even if this is high it does not mean that the dye may be useless for machine dyeing, for the impurities may be so large that they may be completely and easily strained out, and what is left may be of excellent dyeing quality. Nor if there is no insoluble matter, does it necessarily prove that the resulting dyeings in the closed machine will be clean, since the impurities may be soluble at the start but later on, under the influence of sodium sulphide, heat, salt, time and the catalytic effect of metal, coagulate and fall out on the yarn.

Next we may obtain by experiment, the best temperature for dyeing. A still further test is to determine whether the addition of increasing amounts of salt produces a proportionate increase in the depth of shade.

A few years ago, one of the large dye manufacturers brought out a new sulphur color and stated very frankly and politely that it was not suitable for machine dyeing.

This was direct information which was very much appreciated and so nobody used that particular color until one day, a dyer who had tried all the dyes that *had* been recommended for machine dyeing and had gotten just nowhere at all thought he might learn something by using a dye that was specifically stated as being of no value for closed machine dyeing.

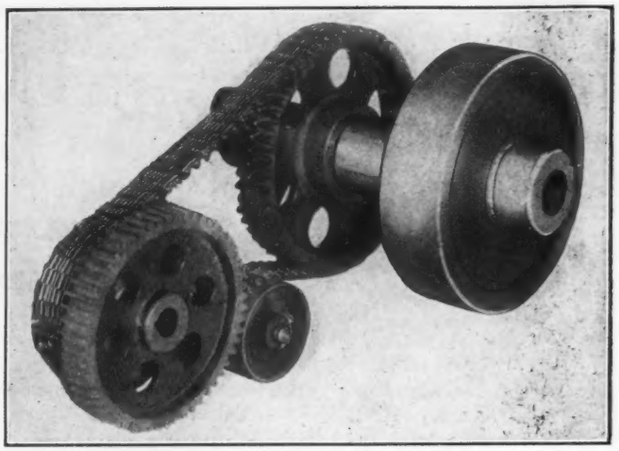
He tried the color and he did learn. He found that he could not obtain greater depth by larger amounts of salt and finally left out the salt entirely and obtained a very satisfactory dyeing and did so from that day on.

It is of interest also to note that the effect of salt on the cleanliness of the dyeings depends at times on whether the salt is put in before the dye or is dribbled in later. In the case of some deep russet shades adding the whole of the salt to the dyebath before any of the dye was put in was the only means of obtaining a good dyeing.

That is information which is not obtained from beakers but which might be foretold by the ultra-microscope.

The ratio of the dye to the sulphide will necessarily vary with the depth of the shade being dyed. Because when dyeing a one per cent shade it is necessary to use one per cent of sulphide it is not always correct to assume that a fifteen per cent shade will need fifteen per cent of sulphide. A perfectly good dyeing might be obtained with ten per cent or less of sulphide and this in turn would need a smaller amount of salt than if fifteen per cent of sulphide were used, with a gratifying decrease in cost and a probable improvement in quality.

Bearing in mind that sulphur colors are produced



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It can not be otherwise for in the manufacture of BONDARON HARNESS STRAPS only the best part of the best hides is used, and that undergoes a special tannage which leaves the hair intact and preserves the fibres of the leather.

Thus are they made durable, strong and pliable. Without stretch. A BONDARON HARNESS STRAP will outwear three of the ordinary kind and this long life makes them economical to use. With them in use, reports of "Harness Down" are practically eliminated. Hence production is increased.

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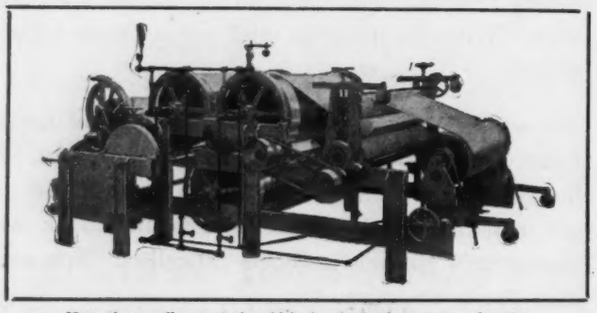

Note three roller quetsch which is absolutely necesary for the proper sizing of all brands and deniers, whether dyed or natural.

THERE are no frills in the Johnson Improved Warp Sizer, to which Charles B. Johnson has devoted all his specialized knowledge. But for *sheer effectiveness and simplicity of operation* it is the acknowledged world leader.

That is why Johnson machines are found wherever rayon, celanese, or silk has to be sized quickly, efficiently and safely.

Whether you go "down East" or "down South," to England or to that birthplace of artificial silk, Continental Europe, you will find an ever increasing number of Johnson Warp Sizers at work—giving an honest dollar's worth—and winning world leadership doing it.

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by fusion with sodium sulphide and that in many cases the reaction is left incomplete, it would seem to be of advantage to use as small an amount of sulphide in the bath as possible, to keep the temperature down as low as is desirable to obtain proper depth. It is possible to conceive that under suitable concentrations of sulphide that the dye might think it was back in the parental autoclave in the dyeworks and start to finish up the reaction which at that time was left incomplete.

Some of the leuco colors, especially certain of the blues, seem to give very good dyeings, being clean and fast and of good money value when the dyer forgets that they are called sulphur colors and promotes them to the class of vat colors and dyes them as such with caustic and hydro. In that way the influence of sulphide and high temperatures may be avoided and it will still be found that the exhaustion may be controlled by the addition of salt.

A certain amount of trouble is caused in the finishing of sulphur dyeings.

At one time it was the fashion to use an oxidising agent after running away the dye liquor. Some used the oxidising agent hot and others, better informed, kept it cold. This oxidising agent would seem to be of no value in the case of direct dyeing colors and in fact at times did great harm to the shade and the washing fastness. Only a few of the greens really "cry out loud" for oxidation after dyeing, with others the oxygen in the wash water seems to be enough.

Sodium sulphide seems to have a great affinity for cotton, in fact so has every alkali, and simple washing in the cold is not enough to break up what seems to be a compound formed between the dye, the yarn and the sulphide.

Before this was realized there were many cases of deep shades which seemed level before drying but showed bad streaks after being dried. This was traced to sulphide left in the yarn and was finally cured by soaping at the boil, not merely once but repeatedly until the soap liquor was clean.

Occasionally there are cases which will not stop bleeding at the boil until the yarn is very lightly soured and then soaped again.

Sulphur colors in closed machines dye very evenly. A dyeing that is really uneven as distinct from one showing slight excess color deposits is an exception and possibly is caused by a combination of colors that is not the happiest for the shade being dyed. For example, it is not a wise thing to attempt to dye a light brown shaded with a little black. The brown probably would be a direct dyeing color and the black is a part leuco dyeing dyestuff. Better results would be obtained by using a brown which itself was on the black tone.

The dissolving of the dye in the drum room is a factor of the utmost importance in closed machine dyeing. It might be possibly the better practice, though, not to expect the drug room to do any better work than they might be expected to produce with the information supplied them from the laboratory. Before a dyestuff is used in the large scale machines its peculiarities should already be known by thorough experiment in smaller machines. The ratio of water

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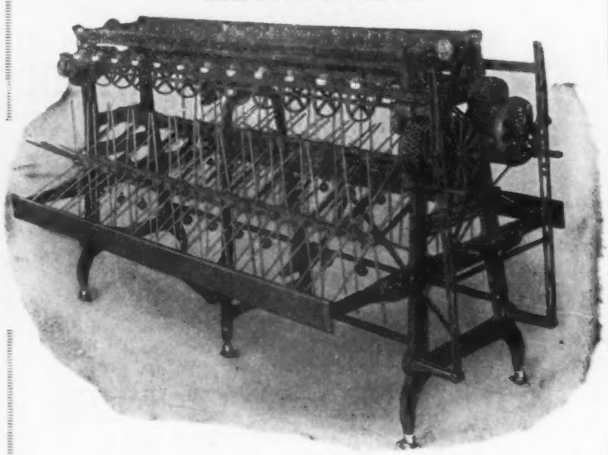

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used in dissolving the dye to the dye and the sulphide and the time of boiling are not matters to be left to the judgment of the boil-up man but rather should be known beforehand and adhered to within practical limits.

The procedure of the actual dyeing will vary with the particular color being dyed but in general, the dye machine containing the yarn, either boiled out or not, according to the fashion prevailing at the moment, is brought up to temperature, and then possibly in the case of certain shades the necessary salt is added. After well circulating, the dissolved color is poured in to the machine. Some pour the color in slowly and some add it all at once. Most probably adding the color slowly has produced more bad dyeings than adding the color all at once, especially in the case of leuco colors, when, if the color is added excessively slowly, the first portions of sulphide are not sufficient to keep the dye in solution when circulating.

If the salt is to be added later, the dyeing is allowed to run for a period of time depending on the judgment of the dyer, before the salt is added; while the addition of the color might have been rapid, it is very important that the addition of the salt be deliberate so that no local throwing out of the color can take place.

Shading the dyeings is very possible in the original dyebath, when colors are used which are suitable for the purpose; wherever possible an addition of a dye, radically different in shade from that already on the yarn should be avoided. Certain direct colors, dissolved in sulphide and applied in small amounts have a fastness more than sufficient for sulphur color requirements.

(This is the fourth of a series of articles on "Package Dyeing in Circulating Machines," by Mr. Schroeder. His next contribution will discuss the practical application of pH control in the dyehouse, and will be followed by a resumption of the present series.—The Editor.)

New England Mill Situation.

(*Continued from page* 396.)

Butler's Merger Discussed.

In New Bedford the consolidation of textile units has begun. The interests owned or dominated by Senator William M. Butler have organized Associated Textiles, Inc., and have appointed some important bankers and others as a board of trustees. This organization has taken over the Butler Mill and the New Bedford Cotton Co. of New Bedford and the Hoosac Mills of Western Massachusetts (North Adams) and are offering stockholders not in the controlling group an opportunity to change their shares into the stock of the newly organized holding corporation. Mr. Butler is a factor also in the Quissett Mill, a highly organized combed yarn spinning plant, but that has not yet been suggested as likely to be included in the new merger.

At a meeting of the Sharp Manufacturing Co. stockholders called to vote on the question of liquidating the property the lack of a necessary two-thirds representation of the preferred stock outstanding prevented the taking of a formal vote to liquidate. Slightly less than the two-thirds necessary was represented and it was necessary to adjourn the meeting until a further canvass for stock or proxy has been made. The question will again be taken up on February 5th. The quick assets of the corporation are gradually being liquidated and it is believed that eventually a voluntary vote to wind up the affairs of the corporation will be taken. This plant originally organized in 1910-11 and a

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second mill built in 1916-17 to manufacture tire yarns was equipped with nearly 1,000 automatic looms in 1921 to use a part of the mill's yarn output.

The York Manufacturing Co., Saco, Maine, is not to be liquidated as it was feared it might have to be a couple of months ago. A plan has been worked out whereby at least 1,000 looms out of the 3,000 or more in the plant can be profitably occupied on combed yarns or specialty fabrics and the machinery for making ginghams and other York specialties will either be sold or allowed to stand idle for a time.

The selling agency for the York products has been transferred to Bliss, Fabyan & Co.; Smith, Hogg & Co., the former agents, having decided to liquidate their business. This liquidation was primarily brought about by the death of members of the firm. Significance attaches to the appointment of Bliss, Fabyan & Co. as selling agents from the fact that the house is also the selling agents for the other large cotton mill plants in Maine except the Pepperell and Hill. The Edwards, Androscoggin and Bates plants have been materially reorganized as to product and equipment and are again on a profitable basis. The Bates plant has been especially successful in developing an active business on fine rayon bedspreads, draperies and other specialties.

The Amoskeag Co. is now stated to be on a profit-making basis in its manufacturing plant, its worsted division and cotton yarn division being very active. It is still the largest producer of fancy flannels and has booked a substantial business for Fall delivery with the cutting trades for whom it is producing many special cloths. Reports from the New York market states that there has been some revival in the demand for gingham and these are confirmed in part by a slight gain in activity in the very large gingham division of this company.

The idea of quantity production at the lowest possible cost being certain ultimately to insure steady profit for cotton mills has been very largely abandoned among New England manufacturers in the past year. Typical of this change is the wide variety of output in the Pepperell Mills that formerly made only the most staple products in sheetings and drills. It now produces a wide variety of flannels and cotton blankets, many numbers of bleached and colored sheets and pillow cases and an infinite variety of specialties for which its mill-controlled sales forces are finding new outlets in the domestic and foreign trade.

Early this month the great Naumkeag Company, known throughout the cotton mill world as a most efficient and economical producer of the single product of bleached Pequot sheets and pillows, announced another change in its policy of production to meet current merchandising requirements by offering sheets with bleached centers and colored hems with pillow cases to match and subsequently supplemented these offerings with a package ready for the retail counter containing sets of cases and sheets for single or double beds. In other words, this company while still holding a high place because of its low cost and large volume of production is diversifying its output in style direction regardless of previous policy of dominating through low cost and large scale production of a staple product only.

The merchandising end of the New England cotton industry continues to be regarded as a most important one and because definite progress has been made in solving new sales difficulties there has been a distinct improvement in financial sentiment toward the industry in this section as a whole. This does not mean that large new investment is pending but rather that financial factors have been convinced that they may safely invest to conserve plants that give evidence of an ability to produce and sell on a profitable basis.

Bills introduced before the Massachusetts legislature which began its session early this month seek one more investigation of the Massachusetts textile industry and also further legislation that will prevent the employment of women in all industries between 6:00 o'clock in the evening and 6:00 o'clock in the morning. At present restrictive legislation affecting the employment of women at night applies only to textile mills.

It is going to be interesting to note to what extent popular sentiments in the state as reflected through its legislature will sustain bills of this character. It is generally believed that the legislation asked for will be denied and if this proves to be the case it will be another source of enture will sustain bills of this character.

As an instance of the changes that are occurring in the sentiment of New Englanders concerning the cotton goods industry it is interesting to note that the textile labor unions have voted in favor of greater tariff protection and representatives of the unions will appear at Washington tariff hearings, if necessary, to urge claims for further protection under the textile schedules.

Sizemore Straight Cylinder Fillet

T. A. Sizemore, superintendent of the American Spinning Co., Greenville, S. C., has invented a straight tooth wire cylinder fillet for cards, known as the "Sizemore Never-Strip and Never-Grind cylinder fillet." A description of this new fillet is as follows: The straight wire is forced through the foundation when 100 per cent perpendicular; the length of the wire from the top of the foundation is approximately ⅜-inch; it is open set with approximately 59,000 points per square foot of 140x90s wire. In other words, this is a flat wire set parallel with the fillet foundation. The settings of the flats to the cylinder, mote knife, plates, etc., remain the same as with the ordinary fillet, only set up regular to this new fillet, no changes being made in the lap weight, draft or speed.

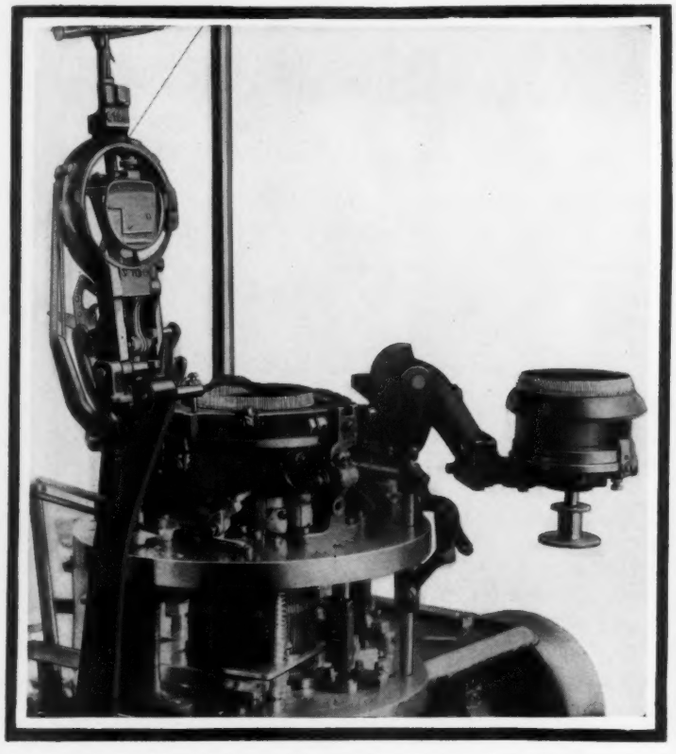
This wire, it is explained, merely combs the cotton fibers and brushes the fibers to a straight parallel condition. A speed of 165 r.p.m. on the cylinder gives the cylinder a surface speed of 9,550 feet per minute. This, it is explained, creates a draft or vacuum, which sucks or draws dirt from the straight wire fillet and deposits it under the cards in the screen or dirt box. The short linters, not over ⅛-inch long, are picked up from the cylinder wire by the flats, and stripped out automatically. By not stripping the cylinder, the good cotton ordinarily left in the cylinder strip, is carried on to the doffer with the regular stock, and is delivered into the web and sliver. Consequently, it is explained, a heavier sliver and heavier yarn are produced, necessitating a lightening of the lap to produce the same number of yarn.

It is stated that a card equipped with this fillet can be operated continuously for 30 consecutive days, when it is recommended to stop, re-set, strip out and clean up. The doffer should be stripped once a month, it is stated. As to grinding, once a month for the doffer fillet and flats, and once every six months, or once a year, for the cylinder fillet, is recommended. Flats and doffers should be ground while the card is in operation, it is stated.

The advantages to be derived, and claimed by the inventor, will be apparent to the mill man. Mr. Sizemore points out that with it a card will produce two per cent additional production in 53 hours, which will be more even, smoother and cleaner, and of a breaking strength from three to five pounds higher. A longer life of the cylinder wire, one-half saving in labor on grinding and stripping, continuous operation of the card are among the other points he mentions.

E. M. Terryberry, general sales agent, Howard Brothers Manufacturing Co., of Worcester, Mass., states that the Howard Brothers company has been licensed to manufacture and sell this new fillet.

Knitting Section



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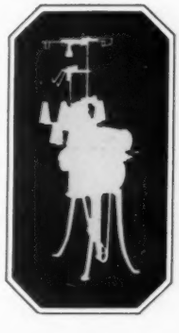

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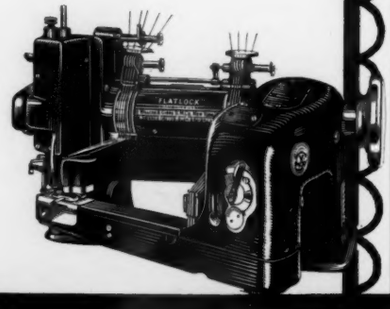


the FLATLOCK

The Seam that C-I-R-C-L-E-S the GLOBE

Problems *in* Manufacturing *FULL-FASHIONED HOSIERY*

By C. H. Baxter

Article 3 in a Series Covering Full-Fashioned Mill Subjects

HAVING covered several phases of the subject generally, Mr. Baxter, beginning with this article, starts a discussion of common, every-day problems of the full-fashioned plant, and how to remedy them. This article, and the ones to follow, will be of especially pertinent interest to those mills which have recently entered this field, as well as to the more experienced ones, for Mr. Baxter's suggestions are based upon his every-day methods in the successful operation of a large plant, and founded upon an experience of many years in the game. In this article he starts with the arrival of the silk, discusses some common winding problems, and gets started on the knitting operation itself, which he will continue next month.

THE articles that I have written for COTTON in the past have been on the general principle of how to manufacture full-fashioned hosiery, with the thought and idea of giving the readers information that might assist them in various ways. Beginning with this article, I will endeavor to outline the many problems that I have had to solve during my years of experience in full-fashioned hosiery manufacturing and only hope that some of the solutions of these problems will be helpful to others.

In full-fashioned hosiery manufacturing, the fixing of all machinery, and especially the knitting machinery, is such that at times it keeps one guessing as to what should be done to overcome a certain problem that one has been called upon to rectify.

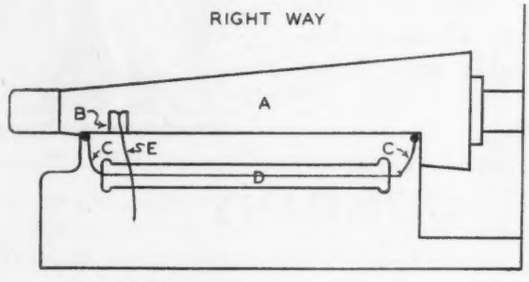
Many times I have been called upon to rectify a certain trouble and it seems that no matter what adjustment I would make to eliminate the trouble, I did not get any results. In cases of this kind I can only say that patience is a virtue and to the beginner, who is anxious to learn the mechanical problems of full-fashioned hosiery machinery, I can only suggest that one must keep his head on his shoulders and study each problem before making any adjustments.

In order that the readers will get the full benefit of problems that arise in manufacturing full-fashioned hosiery, it is necessary to start at the time the silk is first received in the mill and then go through each process of manufacturing to the point of where the hosiery is boxed, ready for shipment.

In full-fashioned hosiery today, the silk is usually received from the throwster wound on paper cones. Therefore, the first operation is backwinding the silk, which has its own problems incidental to winding and cone-winding machinery.

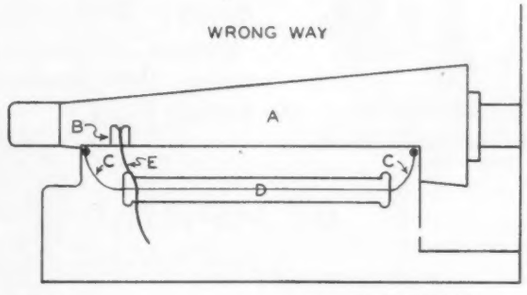
Before going further, I might say that I am only familiar with winding machines made by the Universal Winding Company, and can, therefore, only write on the problems connected with winding silk on this make of machine.

The problems in connection with cone-winding are very few, but of course these machines must be looked after, otherwise, faulty winding will occur. To make good fabric on knitting machines, the winding of the silk is very important. When a cone of silk is wound hard and will hold or drag when the thread leaves the cones, it results in an uneven stitch being made in the knitting. The proper adjustment for making soft cones is, first, to have what is called an open wind, and second, to see that the tensions on each spindle are alike, and not to have too much tension on



A - CONE
B - TRAVERSE GUIDE

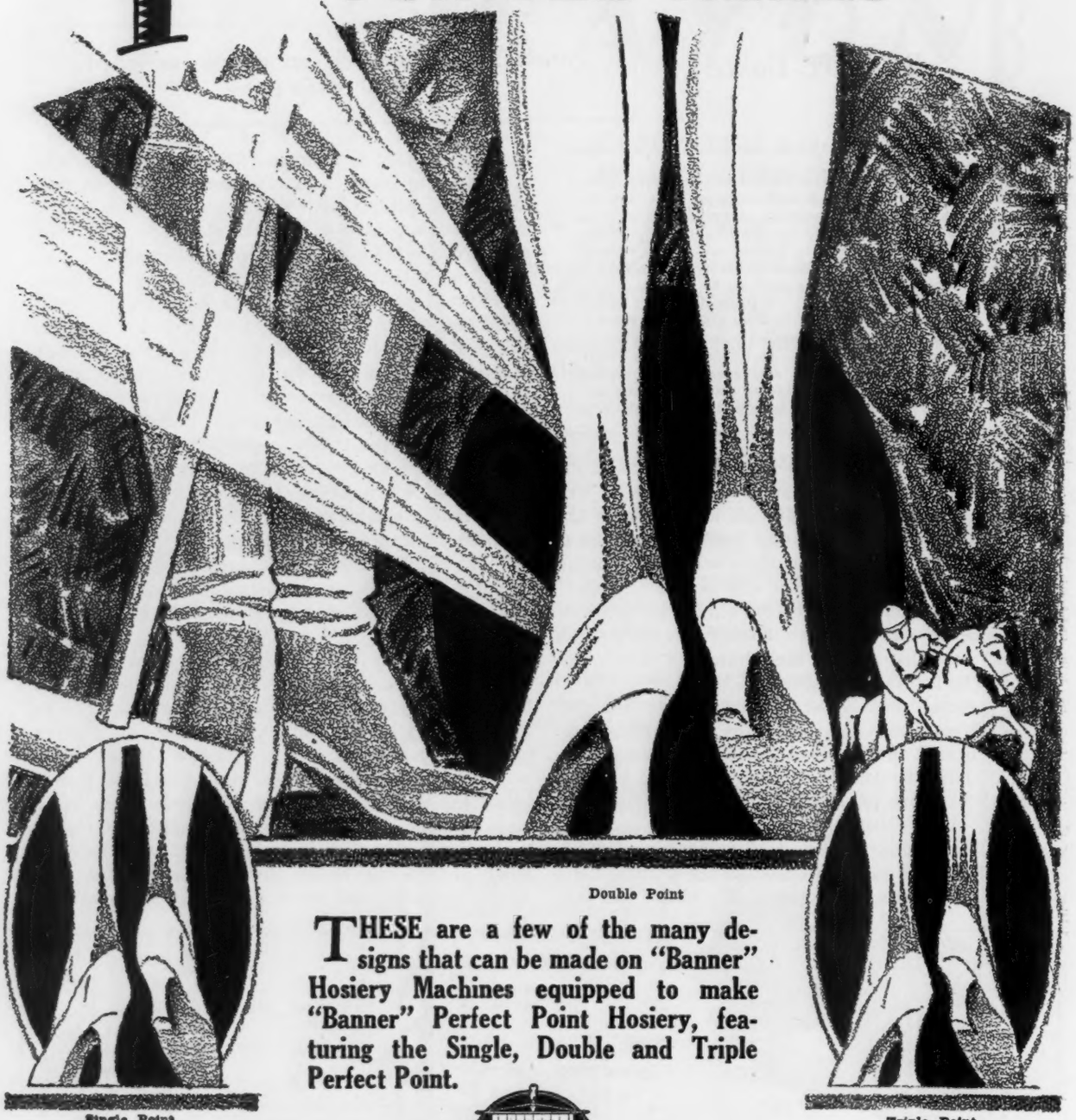
FIG. 1



C - BAIL WIRE
D - BAIL WIRE TUBE
E - SILK THREAD

FIG. 2

PERFECT
POINTED HEELS



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the thread.

To secure what is called an open wind, it is necessary to regulate the speed of the spindle. The adjustment of the Universal coning machines for this purpose is in turning the Gainer pulley adjuster, which is in the center of the Gainer pulley ring in the rear of the machine. This Gainer pulley ring is a split ring, and by turning the adjuster, it expands the ring and slows or speeds up the spindle, as wanted, to give a variation to the lay of the thread winding. A cone properly wound should have each layer of thread about 1-32-inch apart. This will give a soft cone and will run off the cone freely and not stick to the thread layer next to the one running off the cone.

For hosiery winding, most manufacturers use what is called the disc tension. The thread is run between two metal discs and the tension on these discs are controlled by small weights. To secure a softly wound cone, one must see that not too much weight is placed on the discs so that the thread does not hold too tight when winding.

In the course of manufacturing hosiery, a problem that presents itself at all times is what is called split ends in silk. The causes of split ends are many but very often it is caused in the winding.

Rough or cut porcelains are causes for split ends and these parts should be examined at least once a week, and any cut porcelains should be replaced. The

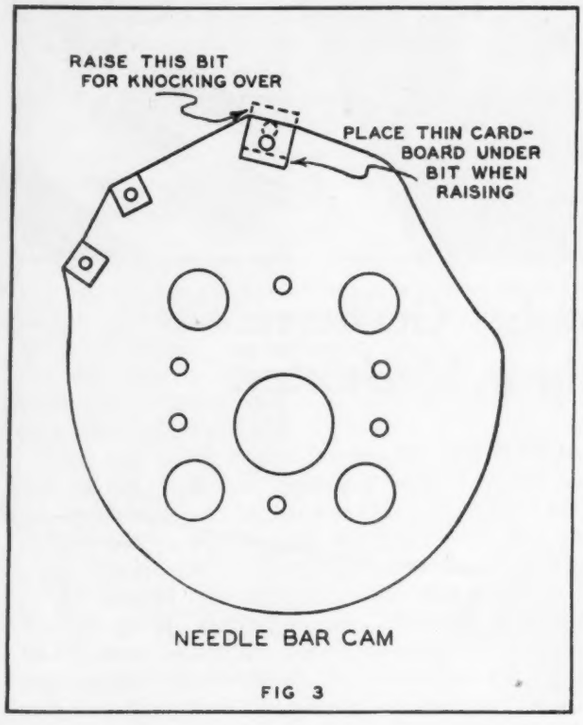


FIG 3

disc tensions are operated by a lever to revolve them, so as to prevent the silk from cutting the disc, and one must watch, and see that these discs are revolving; otherwise, cut discs will cause split ends.

Another cause for split ends is having the slub catchers adjusted too close. When adjusting slub catchers, the adjustment should be such that the thread will pass through without binding. A good way to adjust these slub catchers, is to take a thread that has a throwster's knot in it and pull the thread through the slub catcher. The slub catcher should be set so that the throwster's knot will run through without catching or breaking. All slub catchers should be set with a thickness gauge, and if one will study just what thickness is required for each size thread, it will be a simple matter to have the slub catchers adjusted properly at all times.

The bail wire over which the thread runs will also

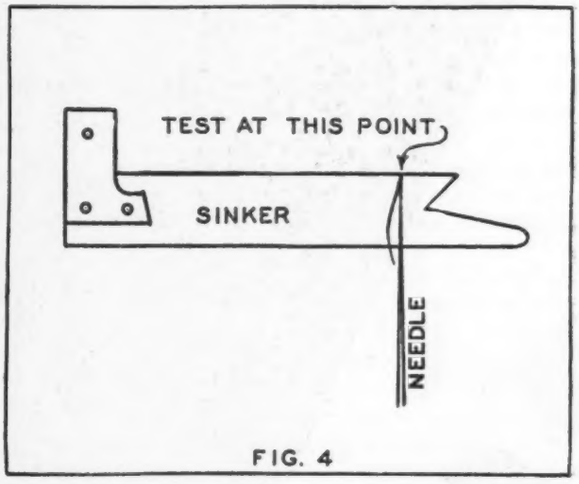


FIG. 4

become nicked or cut in time and these cuts should be taken out by rubbing with emery cloth or replaced, if the cuts are too deep. There is now on the market a porcelain tube that is used in place of the bail wire, and it pays a manufacturer to use these tubes, as the danger of cuts are practically eliminated at this point by the use of these tubes.

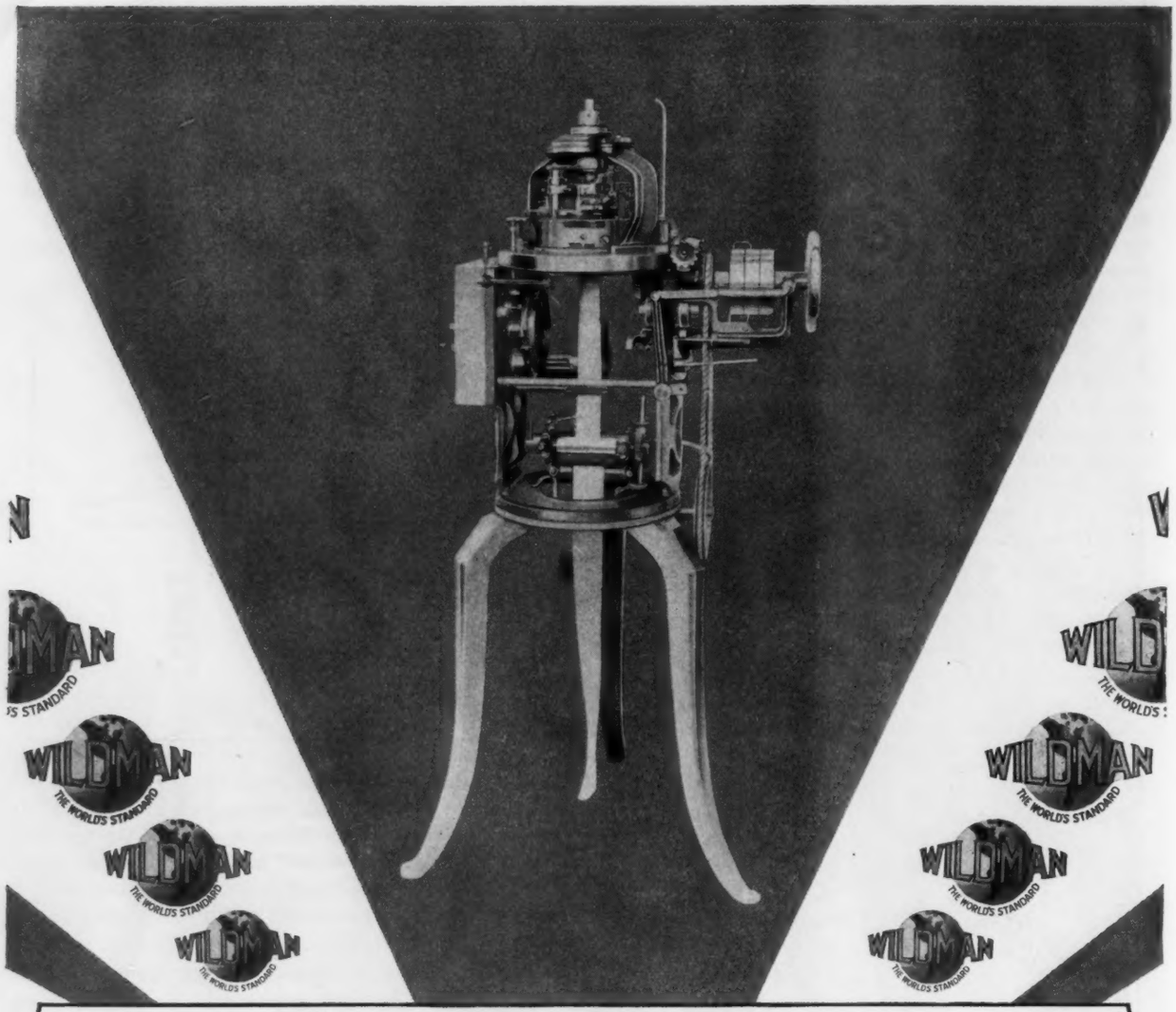
In using tubes, in place of bail wires, one must be careful to have them put on properly, otherwise, there is a danger of having cones of silk wound so that the so-called nose or small tapered top of the cones is wound hard. The porcelain tubes are similar to a long narrow spool, and the proper way to set these tubes is that the front end of the tube is placed far enough front so that the thread does not rub against the end of the tube.

To bring out the point I have made the drawings in Fig. 1 and Fig. 2, showing the right and the wrong way for setting these tubes, and the reader will see that in Fig. 1 the thread running over the tube to the traverse guide does not strike the end of the tube, whereas in Fig. 2 it does strike.

This I know to be very important, as many troubles on knitting machines can be traced to the nose of the cone of silk being wound too hard.

These are about all of the principal problems in connection with the cone-winding operation, and if this is followed out, plus oiling the machinery periodically, good winding should be the result, and through this, many troubles can be avoided in the knitting operation.

The next operation after winding is the knitting operation, and this of course, is the most important operation, and where the most problems and troubles



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occur. A full-fashioned knitting machine is indeed a complicated piece of mechanism, and when people say that they know all about a knitting machine and there is nothing more that they can learn, they, in my opinion, are wrong. Most of my training was received from a man who had spent almost fifty years in erecting and fixing knitting machines, and many times he told me that he still had a lot to learn about the peculiarities of a knitting machine.

In the knitting operation, the first and most important thing that one must secure is proper fabric. The fabric when made should have a clear, even stitch, and without breaks or lines throughout the entire fabric. The making of good fabric is controlled by four things, namely, the needle-bar motion, sinker and divider motion, the knocking-over motion and the presser-motion. Any one of these four motions, not properly adjusted or not working properly, will be the cause of making poor fabric.

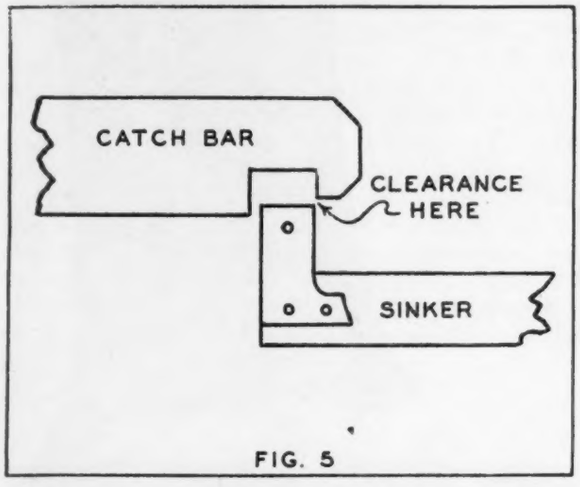

FIG. 5

Let us start with something like this: say that a knitting machine is making what is known as cloudy fabric, and is also making what is called high stitches, or, as some say, loading up on the needles, or not knocking over the stitch properly. Several things may cause this condition, and it is, therefore, necessary to go to the root of the evil.

The first thing to look for and try out, is the motion of the needle-bar, especially when it enters into the knocking-over bits. If the needle-bar is too high, it does not knock over the stitch properly, and will cause this trouble. It is, therefore, necessary to make an adjustment on either the needle-bar roller or on the bits in the needle-bar cam. There is one thing that I want to caution others about in reference to making an adjustment on the needle-bar roller, and that is, not to make the adjustment there unless it is absolutely necessary, as this will either lower or raise the needle-bar from a certain position which it was in formerly, and might, in most cases, disturb the narrowing setting, thereby causing narrowing trouble. By this I mean that when the narrowing points enter into the needles for the purpose of narrowing, the needles must fit, just at the right place, into the groove of the narrowing points at a certain time and place, and by raising or lowering the setting of the needle-bar, the needles will not fit properly into the groove of the narrowing points and the result is that many menders are made.

Whenever I have trouble of this kind, I usually try to make adjustments on the knocking-over bits first. To overcome the trouble of not knocking-over properly, it is necessary to raise the knocking-over bits, so that the needles will go deeper into the knocking-over bits. Should one find, however. that the knocking-over bits are already raised as high as they should be, then the adjustment should be made on the knocking-over bits in the needle-bar cam. The proper way to raise this bit is to loosen up the screw holding the bit and place underneath the bit, one or more pieces of thin cardboard. I am showing a drawing of the needle-bar cam in Fig. 3, and the reader will note the bit I am referring to that should be raised.

By making this adjustment on the bit, the height of the needle-bar is not disturbed, and at the same time, will give additional knocking-over so that the fabric will have clear stitches.

Another cause for not knocking-over properly may be because the presser cam roller is on too hard. When the presser cam roller is screwed in too much, the needle-bar enters too far into the slot or low part of knocking-over bit, and the result is, that while this needle-bar may be adjusted correctly, and the knocking over motion is right, the fabric will not knock-over properly. Too much pressure will also result in a great breakage of needles, so this is something that a fixer of knitting machines should watch out for. As a rule, it is best not to disturb the presser-motion, but try to rectify the trouble in other ways.

Sometimes the trouble of not knocking-over properly is not across the whole machine, but only occurs in certain places or sections. When this occurs, the first thing to look at is to see if all the needle-bars are level. The best method to use for this is to stop the machine at the point where the top of the needles are even with the top of the sinkers, as shown in the sketch, Fig. 4.

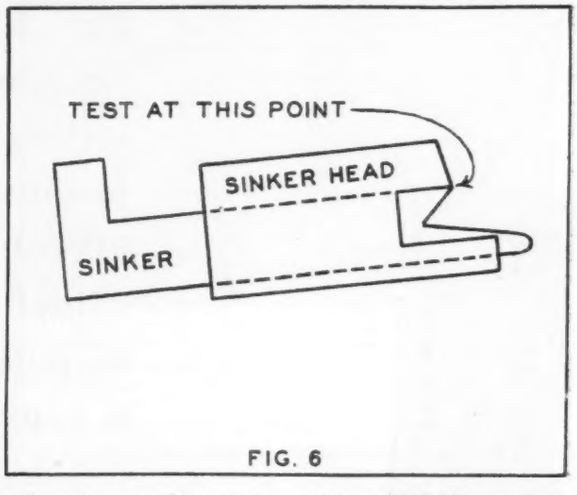

FIG. 6

Then rub the fingers across the sinkers, and when a needle-bar is too high, the fingers will rub the top of the needles, and this will show that the individual

(*Continued on page* 486.)

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Selecting *the* Proper Dyestuffs

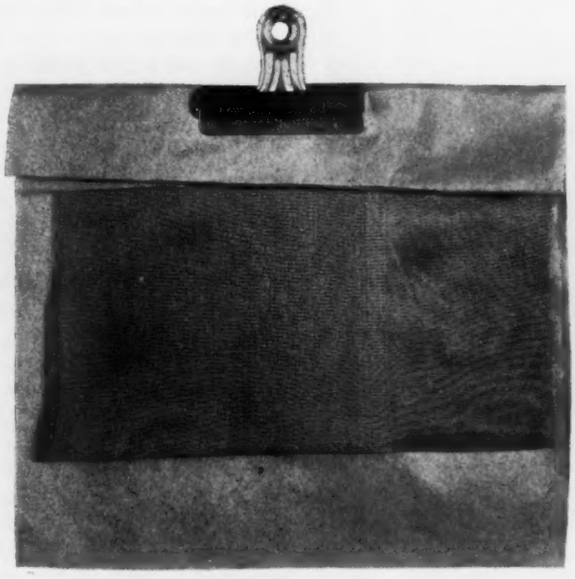
In Testing for Fastness to Different Conditions, There is a Need for Accuracy, Care, Patience and Perseverance

By Noel D. White

Article Seventeen of a Series on "The A B C of Dyeing"

IN selecting the proper dyestuff to use in the dyehouse many things have to be taken into consideration by the man in charge of this operation. It would be idle to say one dye is the best to use in the mill where they dye cotton yarn just because in another mill where they dye cotton cloth or hosiery, it gives the best results.

Even in two mills doing the same work, one may use a dyestuff with success and the other may not find it so good, simply because the methods of application in one are different from those in the other. It is a strange fact that in dyeing, the old saying that there is only one way of doing a thing right does not hold good. Every dyer that has learned in a different place has learned a different way, some in quite a radical difference, like for instance in dyeing silk hosiery in a soap bath, and in dyeing the same thing in an acid bath. Methods as opposite and as far apart as the north and the south pole, and yet who can say that one is right and the other is wrong, when both dyers are doing it successfully.



Knitted fabric prepared for exposure in a window to test for fastness to light. Part of the fabric is covered by rolling up in the paper.

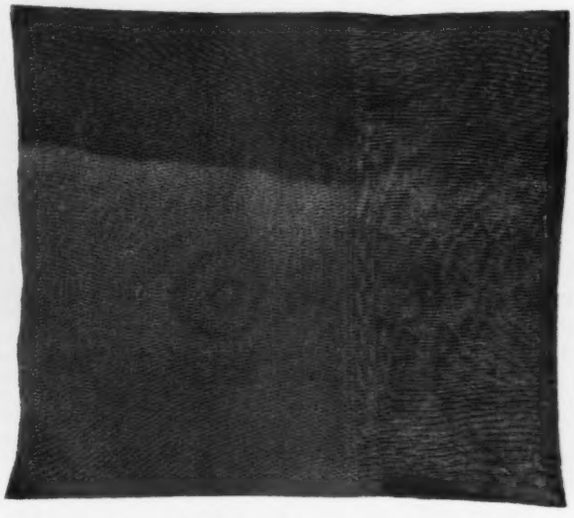
With colleges and textile schools throughout the country today teaching dyeing, and students attending them in increasing numbers every year, it is to be hoped that in the near future more standardized ways of dyeing will come to the fore and the best way prevail.

It is not my object here to judge which method one should adopt, but to explain and give fundamentals, and no matter what way a dyer may have of doing his work, the principles involved are the same.

In selecting dyestuffs, one has to test them in the laboratory in accordance with the way he intends to use them, pick out the ones which he considers most suitable to his work, and which give better satisfaction, then let his judgment guide him.

When Watching the Clock is Not a Bad Habit.

In testing dyestuffs for any special purpose, as well as matching shades in the laboratory, the work should be carried out as nearly as possible in the same way as when doing the actual dyeing in the dye house, entering the chemicals at the proper time, and boiling for the same length of time.



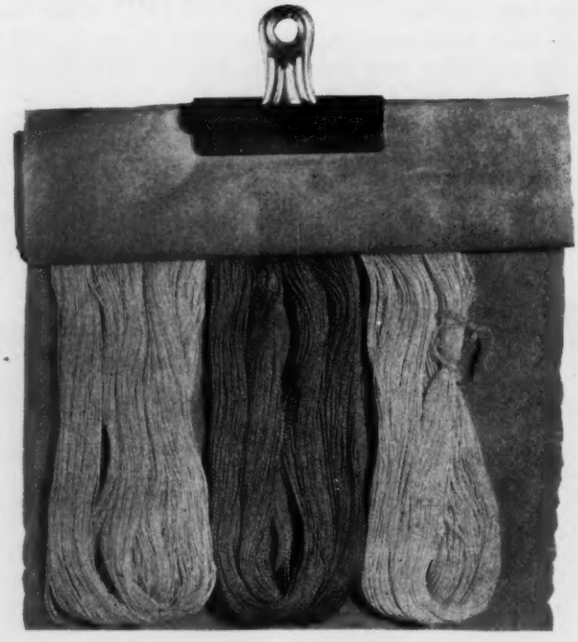
The same piece of fabric after a three weeks' exposure in a window. Contrast the portion which was covered with that which was exposed and note how the dyestuff has faded.

Watching the clock is a performance that the dyer is not well qualified to do. He gets nervous seeing the hand of the clock move so slowly and is inclined to hurry it up, and cuts down on the time. He has other things besides that claiming his continual attention. He has to keep the dyehouse going. It is best for him to delegate one of his assistants to do that work for him, but he must select one that will do positively what he is told to do, one that can be trusted and lets the dyer do all the thinking for him. With such a man to do his testing, the dyer may attend to his other duties in the shop, while the work is going on in the laboratory. The assistant not being bothered with any other responsibilities can keep careful watch over his

tests, watch the clock and take notes of the time it takes each dyestuff to be absorbed by the material, and grade them accordingly, so when he needs them to make up a formula he can select for his formulas those that have, as nearly as possible, the same characteristics.

It may be argued that this assistant may learn too much, and some day may even displace the dyer, but such a notion and narrow minded conception should be relegated to the dark age. In the first place, any dyer who harbors such an idea gives himself away as an incompetent, because no dyer who knows his business need ever be afraid to be out of a job very long, and besides if a man has it in him to learn nobody can keep him from doing it. Of course, I am aware that such things have happened, but to my knowledge whenever a dyer has been displaced by his assistant, there had been a reason and in some cases that reason was economy and cutting-down expenses in the dye-house that way is a sure sign that it is not doing very well, and the dyer should be glad to get out before the smash. Anyway, in my long career as a dyer, I have broken in many a good man and have never yet had a chance to regret it.

Fastness in colors has given cause to more arguments than anything I know. There is as yet no standard for any degree of fastness, and only quite recently has anything started systematically to decide what to expect, and what to look for in the fast dyed textiles and with the capacity and high standing of the people engaged in it, it is fair to expect that very soon now we will know something definite as to what any one may expect in fast colors.



Showing the method of preparing skeins of silk yarn for testing fastness to light. Mr. White describes this as an inexpensive way of testing dyestuffs. The clips are inexpensive, and serve the double purpose of keeping paper tight and of furnishing a means of hanging the sample on a nail or hook at the window or on the wall where the light may fall upon the sample being tested.

Testing for Fastness.

Fast colors may mean that color may be fast to sunlight; there are many such, and some of them may wash out of the fabric at the first laundering. Silk Fast Red is one of them. Or, it may be fast to washing; that is, it may stand several trips to the laundry but when exposed to light it will fade rapidly. Developed Primuline Victoria Blue, Green Crystals, are fine specimens in that line. Also some colors may stand both laundering and sunlight, but will be utterly destroyed by perspiration. I know of a developed black that does that, also several colors. Some colors are fast in every respect, even to boil off and cross dyeing, and the slightest bleach will spoil them. The absolute fast color in every respect I believe is as yet not known, so when looking for fastness it will be well to find out what kind of fastness is required, what the dye has to stand in order to be called a fast color for a given purpose. For hosiery dyeing, the requirements are that the dye be fast to washing, above all, so we will discuss that at this time.

Fastness to Washing.

With a dye tested on the material as explained in a previous installment of this series, the dyed sample is cut in two. One part is kept, with the date it was dyed, the name of the dye, the amount used in dyeing and the name of its maker pinned on it, for comparison and future references. The other part is used for making whatever test may be required in the matter.

If it is yarn to use in knitting with other colored fibers, the usual procedure is to braid loosely the sample to be tested with the other fiber white, and wash it in a warm solution of ordinary soap, rubbing the braided piece vigorously for a few minutes between the hands, then wash it with warm water and dry it. If the color has a tendency to bleed when the braiding is undone, the white fiber will be found stained by the colored one. The washed sample can be compared with the other portion to see if the washing has faded the color in any way. If it is a piece of knitted material that is being tested it is soaped and washed four or five times, and then compared as explained.

In this way only dyestuffs that are found to be fast, can be selected with a degree of certainty to produce good work.

Fastness to Light.

While in hosiery dyeing, colors very fast to light are not usually called for, yet some degree of fastness should be looked for in this respect. Hosiery is often exposed in show windows as displays to attract the attention of the passerby. Sometimes they are exposed for an undue length of time, and with hosiery colored with dyes that are fugitive in the light, one can easily see that such display will not speak well for the maker of that brand of hosiery. Such hosiery will not increase in popularity. Also, hosiery carried as samples in salesmen's cases, are continually exposed to be shown to the prospective buyer. If they fade after a

(*Continued on page* 486.)

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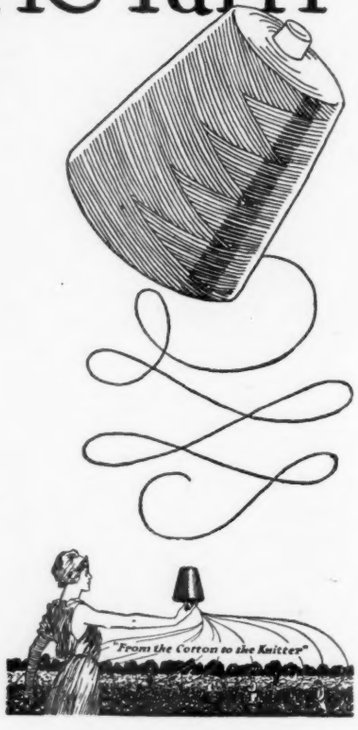

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Operating and Adjusting the Banner Knitting Machine.

DURING the past few years we have published serial artieles dealing with the mechanical adjustment and operation of the Model K, R I, and H H knitting machines. These articles gave practical suggesfions for the mill operating executive in connection with common difficulties arising in the operation of these machines, and the suggestions of the authors covering remedies for these dlfficulties: and explained accepted methods of adjustment, settings, etc.

The series which starts with the article below will cover, in a similar manner, the Banner type of machine. The author is well qualiffed to discuss the subject, and will welcome commenis from our readers, as well as any suggestions of points of problems connected with this type of machine, and its operation, which might be covered in his articles in future issues. —The Editor.

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

EDITOR COTTON:

In beginning this series of articles on the operation and adjustment of the Banner knitting machine, I think it would be the proper method to point out first the correct way of setting up the new machine and new parts; then discuss later some of the common problems which arise in machine operation.

I wish to say at the outset that these articles will give my personal ideas, based upon an extended experience with this machine. Realizing that there are many different ideas on a number of the points, I would welcome comments from any readers of "Knitting Kinks" concerning any point with which they do not agree, as such an exchange of ideas will be helpful all the way around. We will now take up some of the points on setting up the machine and putting on different parts.

Fitting Main Shaft Drums.

The fashion wheel, drum, main ratchet, chain ratchet and stop motion wheel are all spotted on the main shaft and very seldom cause trouble, but if necessary to insert any of these, the following method will be found satisfactory:

Smooth all sides of each part and have the shaft moving freely. If the shaft binds in the bushings in the frame, tap them lightly with a hammer in the necessary direction to secure free movement. Always have one set screw tight while spotting the other. Take the main rachet first and spot it any place on the shaft. Then engage the pawl in the second tooth of the heel where the pull-down picks go into action (this move will be made by the evener dog) and have the the drum, ready to go off the heel. Keep the drum over to the left side of the frame, and be sure that the edge does not rub against the frame, but that the bearing serves its purpose. It may be necessary to take a little off the edge. When setting these drums in their respective places, the instructions are given—when the pawl is full throw front. As each part is placed, take the machine through by hand, and satisfy yourself that the machine will function properly before spotting.

When setting the stop motion wheel, be sure it is tight against the frame, so that there is no side play in the shaft. Spot this with the pawl, having made the first move on going into the heel link with the stop motion wheel ready to shift the belt to slow speed.

Take the same precaution for side play when setting the fashion wheel. Engage the pawl in the sixth tooth of the rachet (new style)—old style would be the last tooth preceding the six fashion teeth; and have the fashion plunger resting on, and just covering, the first adjustment screw in the fashion cam.

The Pawls.

When assembling a new main rachet pawl and plunger the standard length is 4 1-2 inches from the center of the shaft to the tip of the plunger, but that will not always apply to a machine that has been running several years. When the old plunger is worn from riding on the idler it can often be saved by merely grinding a smooth front on it and adjusting to a new position. Before taking apart, grip it in a vise and make a file mark along the side visible from the right side of the machine. Set the pawl so that the clutch lever plunger is just at the edge of the sta-

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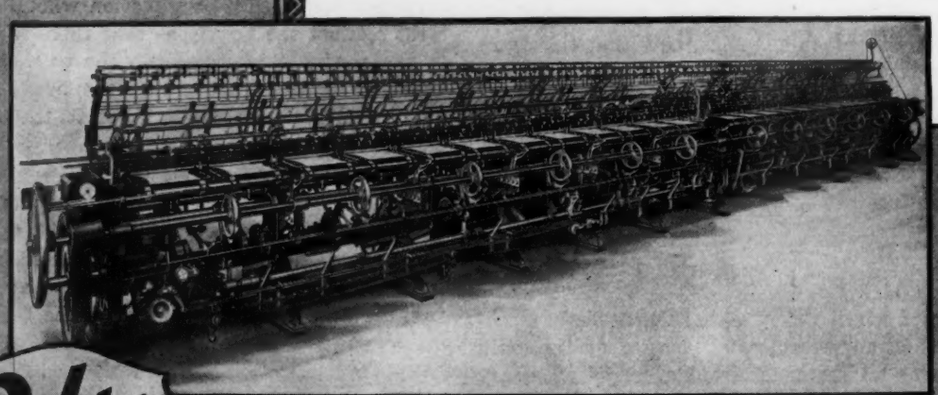

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tionary cams, and not those that are movable, when ready to snap in and out of the heel and toe.

The pawl idler should be adjusted when the block is resting on a fashion link (5-16-inch thick) thus allowing the pawl to engage one tooth in the main ratchet, and it will insure good results throughout the chain. These fashion links often vary in thickness, so rack the machine through and if the results are unsatisfactory, make a slight variation in the block adjustment.

The chain ratchet pawl is adjusted with the pawl full throw front and having moved the chain up to and ready to go on (not cramming) the going out of the toe link (7420). (The numbers refer to the parts catalog.) When the chain is crammed up against or hangs on a link, trouble is sure to follow by having the machine go out of time in fashioning and make uneven stitches or rings around. The pawls must have free working movement, with sufficient tension placed on their springs so that they snap off a link and do not lag, which will often allow the main pawl to engage a tooth where not desired, and cause out-of-time trouble.

The Evener Dog.

The best method in adjusting the dog is to have the pawl make the move which throws the pull-down pickers into final action, then move the quadrant full throw back, and with it in this position bring the dog up against the nib on the stop motion wheel. It is often noticed that the dog will throw the pickers into action, but the pawl, on its next forward move, gives the drum a nudge and moves it a trifle more, thus proving that the dog is not properly adjusted.

Clutch Lever.

The clutch fork should fit in the clutch freely, but with neither bind nor slack against the clutch or slot, both in run down and reciprocating motion. They usually come oversize, and a good scraper can be made by taking a discarded file and grinding the end down to a sharp edge. Lower the plunger to the position which will give a snug fit, and if it is satisfactory in the run down, but not in the reciprocating motion, there is ample room in the frame hole to move the stud either way. With the clutch lever and plunger properly adjusted it will lessen the strain and snap often heard when the machine goes in or out of the heel and toe.

Setting 104 Tooth Gear and Quadrant.

This operation requires no ingenuity on the part of the fixer, but rather, the ability to know when the clutch shifts hard or easy, and then strike the happy medium, remembering that the clutch must not strike directly into the slot, but just a trifle ahead. (See Fig. 1).

Have the clutch up on center with stud of 104 tooth gear above center, just along outside edge of the frame. Mesh the tooth of 26 tooth gear opposite the clutch slot with the 5th or 6th tooth in quadrant. Should the clutch shift easily, move the gear ahead one or two teeth; if hard, move it back. When fitting a new connecting rod, adjust it to the stud of 104 tooth gear first and make sure it will pass the quadrant freely when in each quarter turn position of 104 tooth gear. Turn down the end connecting to the quadrant if the rod jams. There is often a difference in the conecting rod when it is tried for clearance with and without the stud (537) and this should be taken into consideration before turning down too much.

Ring Gear and Its Timing.

A new ring gear is made to fit tight, and if it seems to bind, the cause will no doubt be iron dust from the cutting operation. Place it in the base squarely and turn a few times by hand; remove it; cleanse the base thoroughly of dust and place a little oil around the seat. After a few minutes running, it usually works smoothly. Do not grind the edge on a buffing wheel, as a slight variation will give a wobble to the cylinder. Mesh it with the bevel gear so that there is no grind or slack.

To time the ring gear for the required reciprocating motion, turn the quadrant full throw back and make a scratch mark across the gear and base. Then turn the quadrant full throw front, and the space between the marks is the time of the throw. To give it more throw (shorten distance between marks), pull

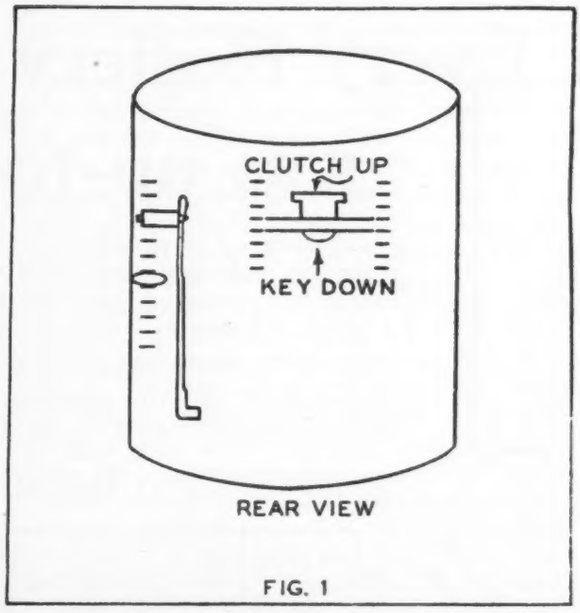
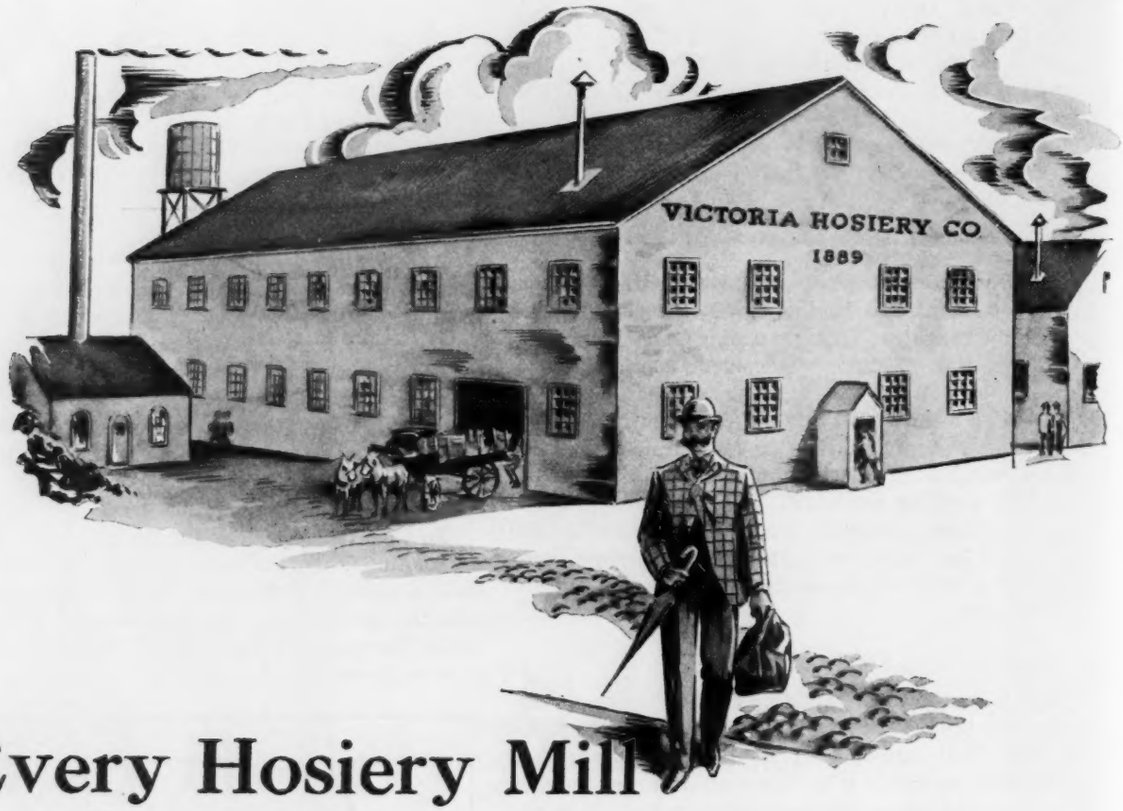


FIG. 1

the connecting rod stud in 104 tooth gear farther out, toward the teeth of the gear, and vice versa.

The machines are timed in accordance with the size of the cylinder, and their various functions. A regular 3 1-2-inch machine is timed 2 3-4 inches; a 3 1-2-inch diagonal, ¾-inch; a 3½-inch split foot, ½-inch; and a 3½-inch pointed heel, 2½ inches. After the fixer has learned the special features built into a machine, and should have the timing get out of order, it is unnecessary that he tear the machine apart in any way to remedy it to the exact figure if he bears in mind that too much throw is better than not enough.

When fitting a new cylinder, it is often necessary to scrape the seat in the ring gear, which should be done cautiously and in the right spot. Do not run the ma-



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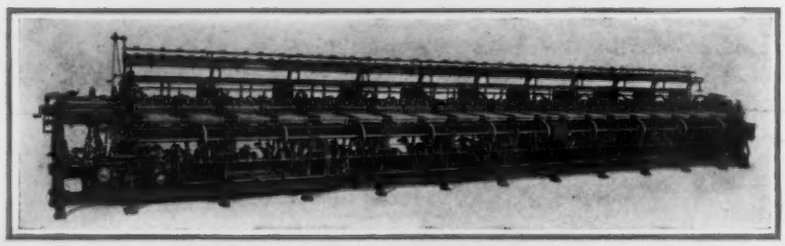

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chine by power and hold the scraper inside the gear. The places of variation can be determined by placing an indicator against the side of the cylinder. True to within a couple of thousandths of an inch, and it will give good results.

In adjusting a sinker head to a cylinder, it cannot always be seated on offset at the top of the cylinder, but must be adjusted so that the sinkers will seat firmly on the sinker head and stitch ring at the same time and not high when resting on either one alone. The sinker slots in the sinker head must align perfectly with the slots in the stitch ring, as must the stitch ring aling with the cylinder slots, so there is no chance for binding, which causes undue trouble and imperfect fabric.

The sinker cap will vary in accordance with the cylinder and sinker head, and if these have been properly adjusted, the cap will likewise give satisfaction after a close inspection and removal of the burrs.

Sinker Cams.

The sinker cams should be polished smoothly and adjusted so that the edges conform with one another, eliminating all nicks or small openings which will, in due time, break the sinkers. A good adjustment for the side sinker cams is 3-16-inch from the inside of the cap, with the bumper screw in position so that the sinkers will cast off the stitch as the needles are being raised through the line of fabric. As each fixer has his own method of setting the bumper screws, no standard will be given other than that it must be borne in mind that it is much easier to put the stitch on needles and sinkers than it is to cast it off.

Raise Cams.

A new raise cam should be very smooth where the needle butts ride, as any slight nicks will cause a chattering of the needles, and in a short time become big enough to break the butts. All cams around the cylinder should have paper-thickness clearance from the cylinder so that there is no unnecessary wear or grind. Adjust the raise cams so that there is ample room for needles to move freely from the stitch cam. The angle of elevation is 35 degrees for fine gauge machines and 40 degrees for coarse gauge. When grinding (if necessary) these cams, care should be taken not to have the angle too steep. A small oil stone will be found useful to polish the needle surface of these cams. If a cylinder is entirely filled with new needles it is a good idea to work soap stone in the needle slots and around the cams while the machine is running for an hour. This will insure an extra smooth surface to parts where the needles work. When going out of the heel into the double sole with no slackening device being used, if there is found an inverted-V tight spot in the double sole it indicates that the right raise cam is out of adjustment and should be moved back a trifle.

BANNERMAN.

[This concludes the first installment of this series of discussions covering the operation and adjustment of the Banner knitting machines. The next installment will appear in the "Knitting Kinks" department of an early issue. In the meantime, comments from readers concerning any part of the discussion is invited.—The Editor.]

Criticizes Baxter's Mill Lay-Out.

EDITOR COTTON:

I would like to make a few comments on Mr. Baxter's article, "Lay Out of a Modern Full-Fashioned Mill," appearing in the December issue of COTTON. First, I would say that Mr. Baxter has evidently solved the problem of building an ideal mill in which no columns are necessary (Refer to his sketch, page 209, December 1928 COTTON.) It is noted that he provided only a fifteen-inch space for the back aisle of the machines. In a building designed to take care of an additional story for future expansion, the first floor columns would necessarily be at least fifteen inches in diameter; and 48 foot spans would be rather impractical. So it will be necessary to place columns between the backs of the machines, and it further will be necessary to leave space enough on one side of the column for the operative to pass. At least it should be done. It is, therefore, evident that not enough back aisle space has been provided.

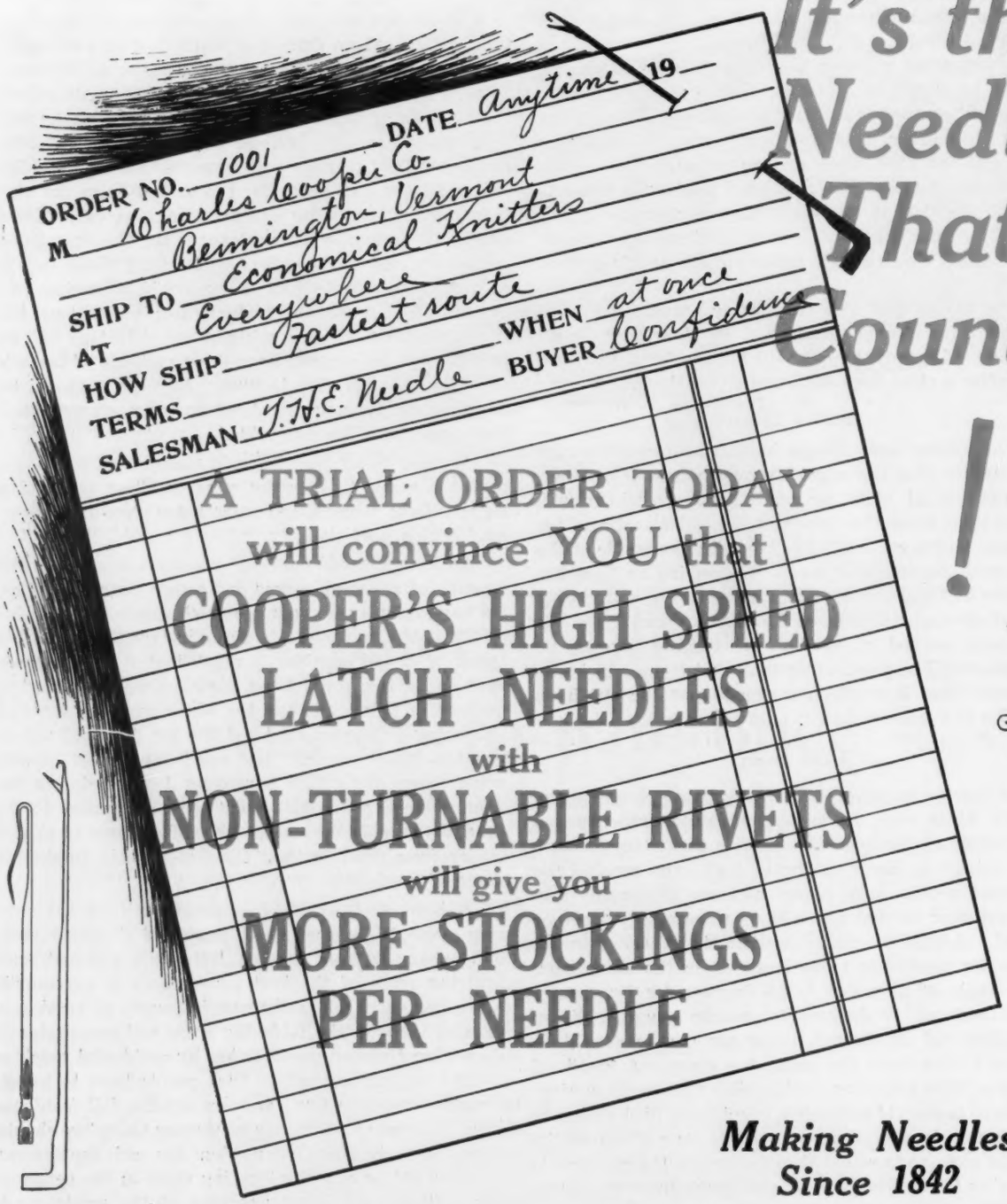
Another thing that I would consider of much importance would be a woven wire partition separating leggers from footers, and some space should be allowed for this partition.

An item I would consider a serious mistake is the location of his wash rooms and toilets near the office. He has evidently laid out his wash rooms with the interest of the employees in the office uppermost in his mind. I would consider it much better for the manager and office force to be slightly inconvenienced in matters of this kind than the whole working force of producing employees, and if I did not feel that my allowance would warrant the small expense of private wash rooms for office employees I would locate the general wash rooms at a point most convenient to the producing employees and let the office force be slightly inconvenienced rather than the whole producing force of employees.

It is never desirable for operatives from the knitting room to be passing through the finishing room and around finished goods. Even in a full-fashioned knitting room of the best order there is necessarily some lint, much oil, and there is danger of employees passing through the finishing room and unconsciously damaging finished goods either by accidental touch or by the natural inclination that people have to handle finished merchandise, and especially full-fashioned hose. The wash rooms for employees therefore should, to my mind, be made independent for each department. This should be done by locating them in the center of the building and thereby serving all the employees to the greatest advantage.

The tendency up in the East, until recently, has been undoubtedly one of providing more space than necessary, and Mr. Baxter is going in the right direction by condensing some. I think, however, he has gone a little to the extreme in the width of the building. It is always necessary to have production racks of some description, which may be a special rack designed to sit at the end of the machine, or wires strung across the mill, or special trucks for the goods to hang over the top, but in any event some arrange-

It's the Needle That Counts!



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ment will have to be made for the stocking process and to carry stock of legs for footer and to take care of footer production. Mr. Baxter's lay-out leaves very little room for items of this kind.

CONTRIBUTOR No. 4133.

Operating a Suggestion Box for Employees.

EDITOR COTTON:

Recently one of your contributors asked for information in connection with operating a suggestion box for employees in a hosiery mill.

We have had a suggestion box in our mill for several years, and while I cannot say that it is a successful way of getting employees to help us in improving our business, we have received enough suggestions from time to time to warrant our keeping up the suggestion box.

I believe that the failure of the suggestion box in most mills is due to the management expecting too much of it. In many cases there is not enough publicity given to the box after it is installed and sooner or later the suggestions die out through lack of interest.

When we first considered installing a suggestion box our one thought was as to how it should be conducted so that the employees would be interested at all times. After a careful study we worked out the following plan:

NAME OF COMPANY

SUGGESTION BLANK NO. 231

I HEREBY MAKE THE FOLLOWING SUGGESTION:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

SUGGESTION BLANK NO. 231

NAME_____

DEPARTMENT_____

IF THIS SUGGESTION HAS BEEN AWARDED A PRIZE, PLEASE PRESENT AT OFFICE.

One of the first things we had to decide on was the type of suggestion blank to use. We all agreed that in installing the suggestion system it would be better not to make it known to all the employees whenever a suggestion was received that warranted a reward. The reason that we came to this conclusion was that we realized that jealousy does exist among employees, and if it were found out who the employees were that were awarded prizes the others would make it discouraging for them through tantalizing and sarcasm. We found this to be true later and were glad that we had thought of it before we installed the system. We, therefore, finally decided on a blank that would be numbered only. At the bottom of the blank we had a perforated slip with the same number as on the top, this was to be torn off by the employee who used the blank to write his suggestion on.

The accompanying sketch is the suggestion blank now in use; it is one that has proved satisfactory in every way for this purpose.

The next problem was to decide on a method of awarding the prizes. We felt that in fairness to employees, and at the same time to have them interested, that a committee of five be appointed, or elected, to decide on all suggestions received. The president of the company was elected as one member and to act as chairman; the superintendent was selected as the second member; a foreman, or forelady, was the third member and two of the general help were elected to serve on the committee. This gave us a committee representing capital, management and labor, and this resulted in general satisfaction, because the employees knew that such a committee would give each suggestion due consideration. The two employees who serve on the committee are elected every six months by vote of the employees in the mill.

This committee meets once each month to discuss all suggestions received during the month and make the awards. The prizes are $5.00 for the first prize, $3.00 for the second and $2.00 for the third prize. For any other suggestions that are worthy of consideration $1.00 is paid. We never fail to make at least three awards each month even though the suggestions may be useless, because we feel that the award should be made as the employees who made the suggestions did so in good faith and should be rewarded and encouraged.

The awards are posted on the bulletin board near the suggestion box, and as the committee does not know who made the suggestions the numbers on the suggestion blanks are posted. The notice posted states that the winners should present their slips on a certain day and hour to receive their awards. In giving the amount of award to the employee we adopted a method which has proved successful. The president and superintendent are in the president's office to hand the checks to the winners who present their slips, no announcement being made as to who the winners are. The president usually says a few words of encouragement and praise. The old saying of, "More can be obtained with sugar than with vinegar", works well in this case.

Three times a year we announce that the awards for the month will be doubled; this is done to revive interest. Each year we give $25.00 to the employee that has been awarded the most prizes during the year; this award is made a few days before Christmas.

In talking with others who have had suggestion boxes and failed with them, I long ago came to the conclusion that the fault did not lie with the em-

ployees, but it was because the management was not broadminded enough. We receive many discouraging suggestions, some of them are petty complaints, some are sent in by employees who can only make sarcastic and destructive suggestions and some are very foolish. We find that the waste basket is a good place for suggestions such as these, and the committee, especially the two employees, are asked to say nothing further about it. We have had suggestions of a personal nature that are sometimes directed against one of the committee, but we realize that in every organization there are a few, who through ignorance, are radical in their views and these must be overlooked.

When a new committee is formed the president has the committee swear that the meetings will be kept secret and no one is to tell what transpired at the meetings.

We make it a point to see that all good suggestions are used; this has a tendency to make the employees proud of themselves, which is again only human nature.

In conclusion, let me say to those who are interested in installing a suggestion box, that the main idea in such an installation is to study the human side of the employees. Be careful not to offend, always form ways of encouraging employees who have submitted suggestions, and above all, let the employees themselves tell others that they were winners. They would rather do this than have it come from the management. Be broadminded and overlook complaints and criticisms. Do not be discouraged over the lack of suggestions during any one month, there will be months when only a few suggestions are received and none of them will be worthwhile. There will be months when one suggestion will offset a good many months of no suggestions.

Be sure to make awards each month on any suggestions received, because after all, the employees make suggestions for the pay that is in it and failure to make the awards means the failure of the suggestion box.

C. H. BAXTER.

Wants Waste Figures for Standard H.

EDITOR COTTON:

We have ten Standard H knitting machines making children's hose. The machines are making three yarn changes on each sock. We also have three loopers and one Merrow sewing machine. On this lay-out of machines we turn out about sixty dozen pair of socks each day, running ten hours.

I have checked up on our production and find that we are running between five and seven per cent menders. We consider a sock a mender if anything has to be done to it. These figures include the knitting machines, loopers and sewing machine.

I find that our seconds run about 1.6 per cent and our waste runs from .8 to 1.5 per cent. I would like to know if these figures are high or about the average. Will some reader with experience advise me concerning this?

CONTRIBUTOR NO. 4130.

23 Per Cent Versus 25 Per Cent Boil-Off.

EDITOR COTTON:

I was very much interested in reading the query of "CONTRIBUTOR NO. 4074" asking, "What is the best boil-off on full-fashioned silk, a 23 per cent or a 25 per cent?" I wonder if there are many users of silk who could be in the same position and wish to know which is the best buy.

Having handled silk for upward of forty years, and having worked with silk of all kinds—Italian, Chinese, Japanese, Cantonese, Bengalese, etc., — I feel qualified to answer that query insofar as to give my opinion and a few points which will, no doubt, explain to this contributor and others interested in the difference, if any, between the value of a 23 per cent and a 25 per cent boil-off in thrown silk for hosiery.

To start at the beginning I will give a brief sketch of what occurs when raw silk as it comes from the filature is sold to throwsters, or manufacturers. Before it goes into the hands of the buyer the silk is conditioned and assayed to ascertain the grade, quality, and the moisture content. At the present time there are several conditioning houses in the country that do that work.

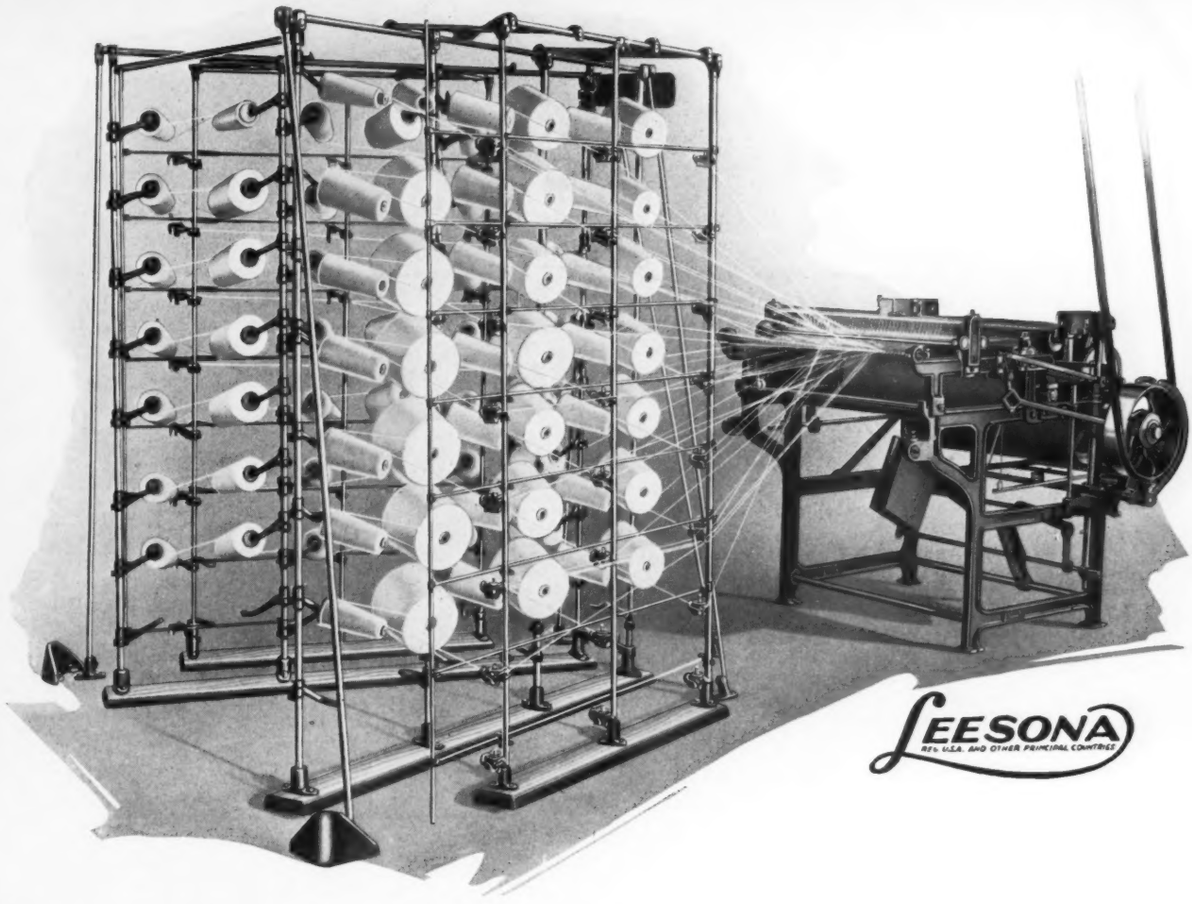
Out of a shipment of silk, samples are taken from several bales, weighed correctly, then dried in an oven to constant dryness, and weighed again to find out the amount of moisture it contains because only so much moisture can be charged as silk and no more. That is called "conditioning." Then the samples are wound to determine the number of breaks in so many thousand yards, inspected for evenness, ascertain the deniers, and graded accordingly. That is called "assaying."

After these operations are concluded, tickets containing a full and detailed account of the findings are written out, put back in the respective bales, and made to follow the shipment. The buyer will find these tickets in the bales that have been inspected, or he may demand them for his protection.

I mention this because a few years ago while working for a silk manufacturer, who should have known about it, I was surprised when he handed me a ticket and samples he found in an assayed bale of silk, with the remark: "Why do they send me this? What is it all about anyway?" I explained it to him, and told him they could have sold him a good many pounds of moisture for the high price of silk, and he would have never known it if it was not for the conditioning house ticket showing the exact amount of silk and moisture in that bale when it left the warehouse.

There may be to this day some manufacturers who would be glad to know that their interest is so well taken care of when buying raw silk. This silk contains, according to the quality and breed, from 18 to 28 per cent of sericin, which is the gum covering the raw silk, and is subsequently discharged in the degumming, or boil-off operation.

Each quality of silk has its own average of boil-off gum. Japan silk is mostly used for hosiery, and will be considered now. Its boiling off average in the raw condition, or as it comes from the filature, is from 18 to 20 per cent, or more, and cannot be con-



Mechanical Inspection of Worsted Yarns for Section Beaming or High-Speed Jack Spooling

"Quality Sells" is an axiom that can be applied to worsted fabrics for outer clothing, perhaps more than to any other textile.

The Universal No. 60-GF cone winder, fitted with automatic cleaners or slub catching devices, removes slubs, spinner's piecings and double spinning, while winding cones for Universal magazine creels which in turn feed high-speed jack spoolers or high-speed section warpers.

When an imperfection in the yarn is arrested in the winding, only one particular end is stopped for the operative to piece up. With eye inspection in the warping or jack spooling, all the ends in the web of yarn are stopped while one piecing is being made.

With the Universal system the degree of inspection is predetermined, and with the cleaners once set there can be no variation in the inspection.

With eye inspection, the jack spooler or warper operative is responsible for deciding when to stop and remove a slub, with the result that inspection of yarn by this method becomes temperamental and decidedly uncertain.

The Universal magazine cone creel, carrying a running cone of four pounds with a reserve cone of the same weight tied to the end of the running cone, gives a continuous supply of yarn to the high-speed jack spooler or section warper. A speed of 300 to 400 yards per minute may be obtained on the high-speed jack spooler fed by a magazine cone creel, and a speed up to 250 yards per minute on a high-speed section beamer or warper. The method of jack spooling or section warping, calling for eye inspection, admitted of a warping speed of from 30 to 60 yards only per minute.

Preferably, the worsted yarn should be mechanically inspected in the single, while winding onto cones or tubes for twisting. After twisting, the yarn is wound onto the wooden cone ready for the magazine creel.

Finally, and more important than the obvious economies in labor through high-speed winding and warping, there is a marked improvement in the quality of the loom beam.

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trolled. In this condition, however, it is never used. Even when it is used in a single thread without any throwing, as for making warps or cheap ribbons, it must be wound on spools, and in order to do that the gum must be first softened.

The throwster engaged in preparing silk for hosiery has three operations to perform: winding, doubling and twisting, in the order named. Before he starts winding he must first soften the gum of the raw silk to loosen up the threads, and hard spots caused by the tight packing in which the silk is shipped. That he does by opening up the skeins, and soaking them in a lukewarm solution of soap, and other ingredients are used to improve that soap solution. Each throwster has his pet formula for it. The writer's best was olive oil soap, neatsfoot oil and glycerine or borax. The opened up silk was tied in bundles of ten skeins each, and soaked over night in a vat, soaking enough silk each time for one day's work.

Of late years there were brought in the market for the throwster, many preparations, each sold to the trade as best for the purpose. Throwster oil, throwster soap, this and that, some heavy soaps intended to remain in the silk and increase the weight as much as possible, other ingredients to do the same thing. At least one firm started selling thrown silk to hosiery manufacturers, which was loaded in the gum with the well-known process called the "tin-phosphate-silicate process", the silk thereby having been weighed permanently from two to six ounces more to the pound with the idea of having the hosiery appear heavier than it really was in the pure silk.

The most common practice, however, is to use in the throwing mill a solution that will remain in the silk after throwing, only to be discharged when the goods are boiled-off ready to dye. The idea is to keep the silk as hygroscopic (capable of absorbing and retaining moisture) as possible. As so much and no more moisture is allowed to be sold in the silk, it is plain that if the soap, or oil, or whatever the throwster chooses to use, could be kept from drying out of the silk as the moisture will, silk would be heavier but, except in the case of the tin loaded silk, that weight would strip with the gum in the boil-off.

Now the silk that is sold as 23 per cent boil-off is, in the opinion of the writer, processed in the throwing plant with the proper amount and best of emulients to condition and soften the gum of the silk as it should be for good work, while the silk with a higher percentage of boil-off must of necessity contain the impurities loaded on it with the heavier soap, or something else that the throwster saw fit to put on the silk in order to lower the price.

What happens then when buying the so-called 25 per cent boil-off silk may not be clearly apparent to the buyer, but that two per cent more that is loaded for the boil-off means many yards of silk that will knit stockings, but will dissolve in the boil-off bath together with the gum of the silk; then the extra two per cent that drops from the goods and is discharged in the boil-off bath, also, will give the dyer something else to fight against. It may be innocuous, and it may not. It may be the cause of those mysterious grease spots that constantly crop out from unknown sources, and are a constant source of despair to the already harassed dyer.

In the writer's opinion that extra two per cent boil-off may also be the cause of some of those mysterious sleazy silk marks that are at the present time affecting the whole knitting fraternity, on both circular and full-fashioned. It has been said that many

Note the two distinctly different shades in the stocking when boiled off. Caused by using silk from two throwsters, one of whom, according to the author, used a soaking solution which caused the silk to turn yellowish in the boil-off.

causes may produce sleaziness, but so far nobody seems to be able to entirely eliminate them, nor assign the true source for it.

The latest wrinkle that has come under the writer's attention, and may be traced directly to a bad soaking solution, used by some throwster, is the tendency of having different shades in a lot of dyed hosiery when the silk is bought from several dealers, and used promiscuously. It is dyed perfectly even except that some stockings will be darker and others lighter in the same batch. When a stocking was found in a boiled-off lot that contained two shades, as shown in illustration, and it became apparent that the silk from two throwsters had been knitted into it, an investigation was started and the result indicated that one of the throwsters had used a mineral oil solution in soak-

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ing and that caused the silk to turn yellowish in the boil-off. When the mineral oil was eliminated no more yellow silk appeared.

From the above exposition of facts, "CONTRIBUTOR NO. 4074" can draw his own conclusions as to what is the best boil-off to buy. The argument is by no means exhausted. Some other reader may have something more to offer on this question, that I am sure is both vital and interesting at the present time to the contributor, the writer, and the whole silk knitting industry.

FARBER.

Has Plaiting Trouble on Underwear.

EDITOR COTTON:

We are knitting 12 cut 2x2 rib underwear on a Wildman Still Head 12 end knitting machine. We are plaiting cotton with rayon and are having considerable trouble with drop stitches and holes. We are using 200 denier rayon in three feeds to plait 40s/1 cotton yarn.

We have tried tube guides to control the yarn with very little success. By shortening the cylinder stitch we are able to eliminate drop stitches to a certain extent, but the number of holes is increased.

Any assistance I can get from any of the readers of "KNITTING KINKS" will be greatly appreciated.

CONTRIBUTOR NO. 4098.

Spreaders on Underwear Machines.

EDITOR COTTON:

In reply to the inquiry of "CONTRIBUTOR NO. 4111," with reference to the use of spreaders on underwear machines. Because of the many varying elements, it is impossible to give a general formula or sufficient data which might be applicable to any particular mill or type of rib or flat fabric. Those elements which must be taken into consideration are machine size, cut and stitch, yarn count and twist, and mill humidity and temperature. It is therefore suggested that the inquirer set up an arrangement of machines and make a complete test of various sizes of spreaders.

A spreader is used, generally, to steer the fabric into the take up rolls unwrinkled, but theoretically, it is used to cause all of the wales of the fabric to be equidistant between the needles and the take-up roll. Since the distance on a circular machine from the needles to the take-up roll, measured in a plane perpendicular to the rolls, is greater than the distance from the needles directly above the ends of the rolls to the rolls, it is necessary to cause the fabric in the latter case to pass through a distance of the same length as that in the former case. Therefore, the use of the spreader. Some mills use what is termed a condenser ring, which is elliptically shaped, in conjunction with a spreader to compensate for the varying distance.

The only effect that either of these devices has on the fabric is to insure a uniform tension on every stitch as it is knit. The actual passing of the fabric around a spreader has no bearing on the final appearance of the cloth, as the loop has been formed by the time the fabric passes over the spreader. Furthermore, the loops are rearranged by the agitation received in the bleaching.

A better knitting condition is secured on machines where the sizes so conform to the particular spreader used when the ideal condition of uniform tension on every knitted loop is approached.

CONTRIBUTOR NO. 4128.

Another Man Disagrees with Baxter.

EDITOR COTTON:

I have read C. H. Baxter's article on "Sleazy Knitting", in the November issue of COTTON, and consider it one of the best I have ever seen on the subject. I do not fully agree with some of his opinions and suggestions, but I think the article as a whole is one of the most cooperative and constructive I have ever read.

The outstanding item upon which I would take issue with him is his position on coming solutions for full-fashioned work. I quote from his article, page 87:

"The solution over which the silk is wound is another thing in which care must be exercised * * * . Almost all dealers or manufacturers of so-called silk oils have a preparation for making a solution for rewinding silk; but many of them are unfit for use, and whenever used, will cause the finished hosiery to have crepe stitches. Any preparation used for a solution should be free from alkali, and this also holds true in the oils used by the throwster. Any oil or soap with an alkali content has a tendency to soften the gum in the silk, and when this condition exists, the finished product will show sleaziness in knitting."

I do not agree with him in his statement that this solution should never be alkali. On the contrary, I would emphatically state that under no circumstances should it ever be acid, and since it is very difficult to have a neutral product of this kind, it is best to play on the safe side and be sure that the solution is on alkaline side. An alkaline solution will not produce rust on needles, sinkers and knocking-over bits nearly as quickly as acid will. Neither will it produce verdigris on brass parts, and acid will.

I hope that Mr. Baxter, and the other readers, will accept this comment in the spirit in which it is made —that of constructive criticism.

CONTRIBUTOR NO. 4123.

[Mr. Baxter will reply to this man, and others, who commented upon his article, in a forthcoming issue. He cordially invites all readers to express their opinions on any point he may discuss.—The Editor.]

Chemical Purchasing Guide.

A new and complete chemical handbook has just been published by the Kalbfleisch Corporation, 200 Fifth Avenue, New York, New York. This book is much more interesting and comprehensive than the conventional catalog, containing 84 pages of chemical facts, valuable tables and is generously illustrated. It is designed to simplify the purhase of chemicals, and to make it an exact and economical operation. Copies may be obtained without charge upon request to the Kalbfleisch Corporation, 200 Fifth Ave., New York City.

The Yarn Market

Philadelphia, Pa., Jan. 14, 1929.

FROM the business standpoint, and considering the year as a whole, the passing of 1928 brought no great sadness to the Philadelphia cotton yarn market. Looked upon in the trading sense, it was just another year of comparatively satisfactory volume with less than a satisfactory margin of profit for either producer or distributor. One influence of the year upon the market, however, was wholesome and helpful—that of the efforts sponsored by the Cotton-Textile Institute, and others, toward eliminating improper practice and establishing a fair and equitable basis of operation in cotton yarns.

The four full weeks intervening between last month's report and the present writing, while coming at an epochal time, revealed little of a spectacular nature for this report. On the whole, however, developments indicated a firm condition with excellent prospects for increased activity before the New Year has gotten along very far.

The first week of the month just passed offered little upon which to comment. The customary December dullness had begun to show up, and the preholiday spirit had invaded the market. There was a listlessness about the whole situation. Price inquiries were made, but they seemed to be largely a matter of formality. The week as a whole was featured by small-lot inquiry and business, and the general tone of the spinners' position seemed to be one of determination and firmness regarding the value of their products to them.

Trade fell off more during the next week in advance of the Christmas holiday, the day itself coming early in the week, and price quotations were little more than nominal. Spinners continued to mark time and be firm, many curtailing operations for holiday purposes. The part of the week following Christmas continued dull and little was done. During this period the regular liquidation of stocks came about, with surprisingly little effect upon prices. Much verbal speculation and prophesy concerning 1929 was indulged in, the consensus of feeling being that the New Year will be an active one, with conditions much more highly competitive, as has been the trend for a number of years. It seemed to be the general condition that spinners as a whole, particularly those of the larger groups, had comfortably large orders in hand, but it seemed likewise that by this very condition, consumers also were provided for in the way of yarn requirements for some time.

The new calendar year of 1929 was ushered in during the following week, and as was to be expected, the holiday influence still pervaded the market. Spinners generally, however, seemed to be in the saddle, having emerged from the year-end influence, apparently, with nothing more than a slight shading on carded numbers, while the combed groups had been able to hold their own in the way of price for a number of weeks. Such concessions as might be worthy of mention evidently were made as a result of local conditions, especially upon stocks which holders desired to liquidate.

Last week brought continued low values to raw cotton, and the continued pressure from this angle had its effect upon the yarn market and both carded and combed numbers responded to the depressing influence with slight reductions, singles and plys both being affected. Outside of this temporary depression induced by cotton, however, the market held remarkably stable, and this was attributed to the unusually liquid state of the stocks of most of the spinners, according to some market commentators. Prices did not drop proportionately with the influence of a depressing character. The week saw many inquiries for prices as a matter of information and general knowledge, and there

Stronger cotton today boosted the atmosphere of the yarn market, and there is apparent a tendency toward a rally in price.

Philadelphia prices on January 14th follow:

Single Skeins

4s to 8s	32	10s	32½
12s	33½	14s	33½@34
16s	35@35½	20s	36@36½
24s	38@38½	26s	39@39½
30s	40@40½		

Two-Ply Skeins.

8s	32½	10s	33@33½
12s	33½@34	14s	34½@35
16s	35½@36	20s	36½@37
24s	39@39½	26s	40@40½
30s	41@42	40s	46@47

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	31
8s and 9s tinged tubes	30
8s 3—4 hard twist waste	29½

Single Warps

10s	33½@34	12s	34@34½
14s	34½@35	16s	36
20s	37	26s	40@40½
30s	41½@42		

Two-Ply Warps

10s	34	12s	34½@35
14s	35@36	16s	36½@37
20s	37@38	24s	39@40
26s	40@41	30s	42@43
40s	47@48		

Frame Spun Carded Yarn on Cones.

8s	31½	10s	31½@32
12s	32@32½	14s	32½@33
16s	33@33½	18s	33½@34
20s	34@34½	22s	35@35½
24s	36½@37	26s	37½@38
30s	39½@40	40s	46

Two-Ply Combed Peeler Skeins and Warps.

8s	43	20s	44@45
24s	45@46	30s	47@50
40s	53@55	50s	56@58
60s	61@64	70s	71@76
80s	81@86		

Single Combed Peeler Yarn on Cones

18s	42	24s	46
30s	47	36s	50@52
38s	51@53	40s	52@54
50s	56@57	60s	62@64
70s	72@74	80s	82@84

Mule Spun Carded Yarn on Cones.

10s	36	12s	36½
14s	37	16s	37½
18s	38	20s	38½
24s	40@41	26s	41@42
30s	42@43	40s	50@51

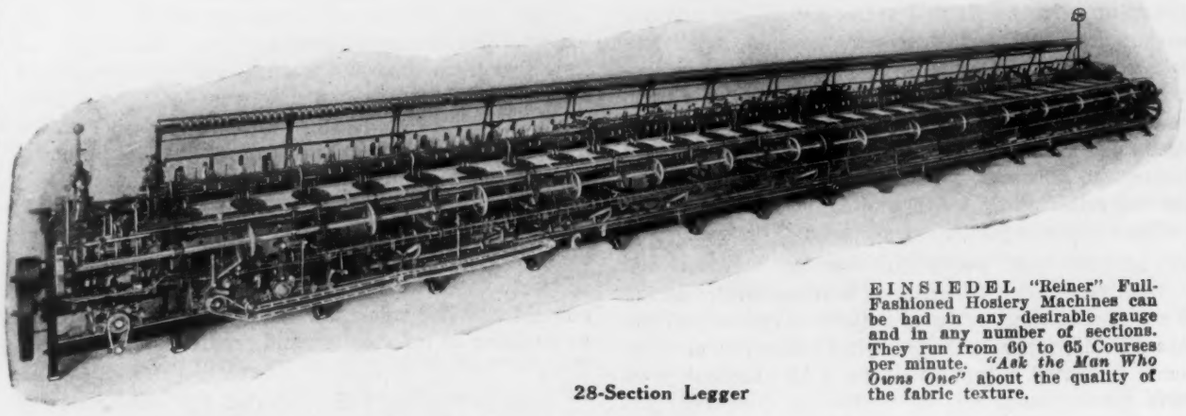
Mule Spun Combed Peeler Yarn on Cones.

10s	43@44	12s	44@45
14s	45@46	16s	46@47
18s	47@48	20s	49@50
22s	50@51	26s	51@52
28s	52@53	30s	53@55
36s	56@58	38s	58@60
40s	59@62		

Speed—Simplicity *of* Operation—Highest Production

Characterize

EINSIEDEL *"Reiner"* FULL-FASHIONED HOSIERY MACHINES



28-Section Legger

EINSIEDEL "Reiner" Full-Fashioned Hosiery Machines can be had in any desirable gauge and in any number of sections. They run from 60 to 65 Courses per minute. *"Ask the Man Who Owns One"* about the quality of the fabric texture.

THESE three essentials must be taken into consideration when purchasing Full-Fashioned Hosiery Machines. They are *"built"* into every EINSIEDEL "Reiner" Machine—a fact that has made them the most satisfactory Machines on the market. EINSIEDEL "Reiner" Machines are solidly constructed of the best materials obtainable; they are operated at an extremely low cost; and can be used with equal success for plain work, horizontal stripes, fancy hosiery and tricot fabrics. They are equipped with clock and lace attachments and are furnished with narrowing tackle on outside of Machines, and with individual motor drive.

If you want the largest possible production of Full-Fashioned Hosiery of the highest quality at lowest cost, you will use an EINSIEDEL "Reiner" Machine. They can be seen at any time in operation at various plants.

OUR MOTTO: *"Dependability and the will to please."*

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Weehawken, New Jersey

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Telegraph Address: "REINER, HOBOKEN, NEW JERSEY"

The Knit Goods Market

TRADING in hosiery this year began about where it scored a most brilliant finish last year. The post holiday lull was soon over, with hardly a break in demand. Mills had 1928 orders with which to go ahead with plant operation, booked better than the usual volume of January business, and left-overs of odds and ends found a ready outlet for the month's special sales. With only six weeks in which to line up Easter stocks, wholesalers anticipating earlier than ordinarily, and confidence in values established, the hosiery market situation presents a most encouraging aspect at the approach to the middle of the first quarter of the year, notwithstanding there exist several problems which in the general order of things might be calculated to cause some uneasiness.

The year dawned on a battle for business, for the present confined to manufacturers of pointex heel numbers sold under mill brands to retailers. The full effect of the cut of two dollars a dozen initiated by Julius Kayser & Co. may not have been felt. There is manifest some alarm over a threatened spread of the bare leg fad and much speculation with results which might follow means for checking it. Some large retail operators are apprehensive of the extent to which encouragement of mechanical repair service installation may, by prolonging the usefulness of stockings, detract from sales. There is foreseen some danger from overconfidence and, in sequence, increasing production to beyond market absorption.

Mergers and expansion of store chains, and a further reaching out by large catalog establishments for more of the over-the-counter business, already have so revolutionized distribution that manufacturers and jobbers may be said to be well prepared for whatever changes in this respect shall occur, as relates to hosiery. Underwear and sweaters are becoming, more and more, subjects of specialization in primary market merchandising, pointing to concentration among fewer jobbers.

Climatic conditions have been favorable to silk hosiery. The usual post-holiday lull in demand did not materialize. Demand in January, however, was emphasized more in the placing of orders with mills than in promptness to supply details. Thus it happens that while manufacturers may be sold well up for the first quarter they may not maintain production accordingly, and for this reason there was some slowing down in a market presenting the appearance of briskness in process of development.

Curtailment, while by no means general, has extended to the two classes of mills selling to jobbers and those distributing directly through retailers. Using representative mills in the latter class, it appeared this division had been the slightly more affected adversely, which was purely logical, as January was a month in which many stores ran special sales, for getting rid of hang-over stocks and injecting life into an ordinarily quiet retail situation, while in clearing the decks for a busy and early Spring. There are spots in which goods did not move as freely as was contemplated; others where there was disclosed virtually a complete clearance, particularly staples in the moderate price range.

A manufacturer in Reading had, to be exact, 500 and one quarter dozens of an overage, an accumulation of regulars resulting from invariably making up a few more dozens than an order calls for. A buyer took the lot, made up of the mill's several numbers, down to the last quarter dozen. Buyers were actively combing mills for odds and ends of firsts and keenly interested in seconds, of which there were some accumulations, as for the holiday trade demand ran to regulars.

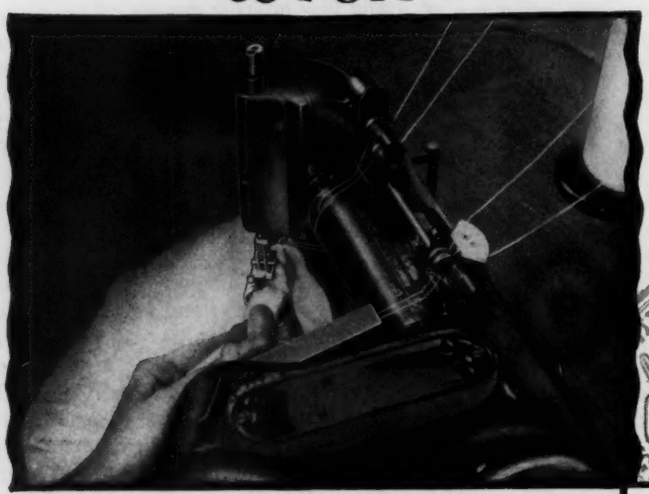
Full-fashioned mills in Reading, with possibly one or two exceptions, maintained overtime work schedules during January, and executives said they anticipated no departure from these schedules, varying from twenty to twenty-four hours a day, employing, generally, two shifts. Practically all of the Reading manufacturers sell to jobbers. There are two notable exceptions, the Northmont and the Princess Royal, one making men's and women's and operating twenty-four hours, the other, women's only, twenty hours, and both declining orders for immediate deliveries. Like conditions prevail among the small mills in towns and villages suburban to Reading, and very recent incidental reports all sound alike—running overtime and selling production. The large establishments experienced the seasonal letdown, but in mild form and necessitating no material change in employment conditions.

Practically no shrinkage in activity is noted in mills in Philadelphia, where, however, operation is on a conservative basis, the moderately busy and the very busy presenting a strong average condition. Small suburban mills as a class are maintaining overtime schedules. In the New York and New Jersey fields there has been an unmistakable trend to reducing operating cost, and where efforts in this direction have succeeded there appears no departure of moment from the situation existing generally last fall. A cursory analysis of conditions among mills in the North reveals that staples at retail prices in a range from $1.25 to $1.85 are indicated as the more active items.

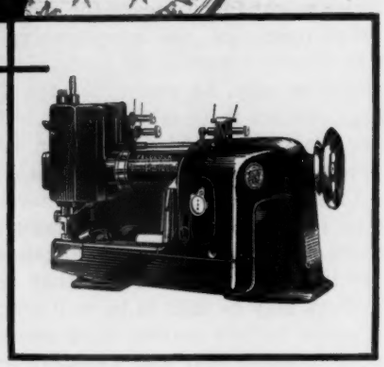
How Pointed Heel Battle is Viewed in the Trade

VARYING conclusions are drawn by manufacturers and dealers from the reduction of $2 a dozen in the price of full-fashioned pointed heel hose. All agree that the Kayser cut marked the beginning of a fight for business among the several leading manufacturers selling their branded lines to retailers, and it seems the consensus that prices for staples will not be affected by reason of the revisions by Julius Kayser & Co., Gotham Silk Hosiery Co. and the Hosiery Combine Corporation. Some manufacturers making no

make a greater profit on SEAMING with



The FELDLOCK



"The Machine That Makes Production"

GARMENT manufacturers are putting cost accounting to work to discover production wastes. Ways and means are then adopted to reduce this expense.

Where seaming costs are too high, owing to a low volume of output, the accepted remedy is use of the Feldlock.

This machine is the highest development of the feed-off-the-arm principle. It steps-up the volume of production to a point where seaming is an economical operation. Wherever *quantity* and *quality* work is desired use the Feldlock.

Please write for a copy of the new Feldlock booklet.

Sole United States and Canadian agents for the Cornely and Uniart Embroidery Machines.

WILLCOX & GIBBS SEWING MACHINE CO.

HOME OFFICE: 658 Broadway, New York, N. Y., U. S. A.

Keep up the standard of work by the use of Genuine W. & G. Needles

WRITE OUR HOME OFFICE FOR SAMPLES MADE ON THE FELDLOCK, OR SUBMIT YOUR OWN FABRICS FOR SAMPLE PURPOSES

PILLING & MADELEY, INC., Philadelphia, manufacturers of women's and misses' novelty hose, one of the oldest and better known hosiery concerns in that city, decided finally a few weeks ago to liquidate, and is offering for sale all of the equipment except a considerable battery of more recent models of machines for knitting fancies in almost illimitable patterns. The mill has been idle for several months, and until quite recently it was a question of whether to remove the plant to Marion, N. C., or liquidate. Stockholders decided in favor of liquidation, and with this in process, there passes out a landmark in the hosiery industry in Philadelphia.

pointed heel number assign two reasons for the first cut to be announced, one that the picot edge stocking, costing, grade for grade, something less than the pointed heel, is steadily gaining ground and that something had to be done to hold the prestige attained by the pointed heel. Another is that the mill making the lower priced and better selling pointed heel was using machines not carrying the picot stripe attachments, and in lieu of installing them, reduced the price.

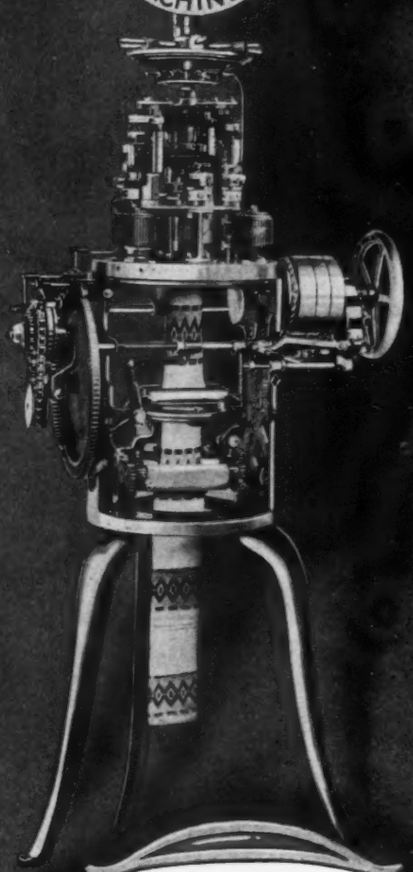
There is said in the trade to have developed some indifference among manufacturers of the pointed heel under a royalty of 50 cents a dozen for a minimum of 25,000 dozens a year. Necessarily the royalty cost had to be added to the mills' selling price, and some added 25 cents a dozen in addition, for taking care of the investment in the special attachments. Latterly this item was absorbed by some of the manufacturers, and there is heard the intimation that in the sharp competition with staples at lower prices, a few mills also absorbed the 50 cents paid for royalty. These statements cannot be given as facts, but are covered in well defined rumors passing in the trade. In any event, it is pointed out by manufacturers commenting on the status of the pointed heel, the paying of tribute came to be looked upon as a cost that might be eliminated, as a majority of the mills which had not assumed that burden have been well supplied with orders.

Some say the pointed heel is waning in popularity, and that, while it appears to be in no lessened demand, this can be ascribed to the fact that some mills which had been making it are no longer doing so, having discontinued it for reasons of their own, and that since the cut in price, other mills have not stepped in where they stepped out. A leading women's specialty shop maintaining a large hosiery department states that 85 per cent of its sales are of square and French heels, the remaining 15 per cent embracing every variety of novelty heel construction.

Fine gauge circular knit hose with the single and two-point heel have proved good selling numbers for leading mills in the seamless division. This may have been a factor in the alleged change of dealer sentiment as to the full fashioned, at present costing woman 65 cents a pair more than the circular knit and 15 cents more than full-fashioned of 42-gauge with picot edge. A mill specializing in 300-needle stockings with both the single and two-point heel is selling to retailers for $8 a dozen, and a few weeks ago orders were said to be in excess of production facilities, the mill being around two to three weeks in arrears with de-

CIRCULAR KNITTING MACHINES

BRINTON



Brinton machines definitely increase profits — by economy of operation, by freedom from lay-offs due to repairs or replacements, by scarcity of seconds.

Let us send you full information of our line.

H. BRINTON COMPANY

3700 Kensington Avenue
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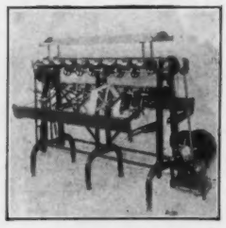
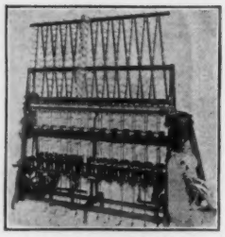
FOREIGN AGENTS

Great Britain and the Continent: Wildt & Co.,Ltd., Leicester, England.
South America: M. Buchsbaum, Calle Alsina 1814 Buenos Aires, Argentine Republic.
Australia: J. H. Butter & Co., Sydney, Melbourne.
China and Japan: Elbrook, Inc., 50 Peking Road, Shanghai, China.

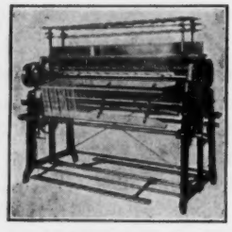
Review These Rayon Workers

Start  with the winder for bobbin

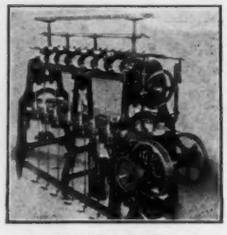
The 4 F Winder

protection, and  the doubler-spinner,

The 5 B Spinner

a type of perfection. For accuracy  our

The 10 K Reel

reel has risen to fame.  Then the single

The B H Rayon Twister

deck twister. And now may we name our newest

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and the 1 K Rayon Reel

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ATWOOD MACHINERY SILK & RAYON

ELMER U. AMES

ELMER U. AMES, chief inventor and also director of H. Brinton Co., manufacturers of circular knitting machinery, Philadelphia, died suddenly, Wednesday, January 2, of heart trouble while driving his auto. Mr. Ames was widely known throughout the knitting industry with which he had been identified for many years, having developed many important inventions and improvements on knitting machines. He was 54 years of age. In 1898 he had first become connected with the industry, as a draftsman for the Acme Knitting Mach. & Needle Co., Franklin, N. H. In 1907 he became connected with H. Brinton Co., where he continued until 1909, when he went with the Jenckes Knitting Mach. Co., Pawtucket, R. I. In 1913, he returned to H. Brinton Co., and on the death of Mr. Brinton during the following year, Mr. Ames became their chief inventor, and continued in that capacity until his death. During his thirty years connection with the industry, Mr. Ames acquired a wide circle of friends, by whom he was regarded as one of the leading factors in the development of circular knitting machinery.

liveries. Obviously the fact that several mills for some time have been making full-fashioned hose with pointed heel without being licensed, did not help the situation for this type of construction for mills operating under license from the owner of the patent. Probably the next month or two will determine more definitely the status of the pointed heel in its relation to the square and French from the standpoint of sales strength.

Excess of Alarm Over Bare Leg Fad's Spread

TIMID hosiery trade factors do not deny they are scared over the possibility of the bare leg "fashion," originating last year on the Pacific slope, and spreading to the East Coast. Makers of ankle hose appear to be preparing for it, and this has the effect of intensifying the fears of the timid. Not that many believe women are going to discard full length stockings to an extent that would be seriously felt in their sale. But, it is pointed out, there is a psychological effect that is not to be ignored, in that, while the fad may make no material progress except where it is rooted, perhaps, dealers may be hesitant to stock up with staples as they would ordinarily. "I am convinced," said an executive of one of the very large primary market establishments, "that whether anklets, or socks, do or do not displace full length hose for a time, we are going to feel the effect of the scare over the possibility that they will, and we shall proceed conservatively."

That the "possibility" is not treated seriously by leading distributors is evidenced in the volume of forward orders, for the general range of silk hosiery, although it is admitted no one knows any more about it than can be safely said of climatic conditions a week or two in advance. Any trend to a stockingless leg period should be manifest first with the opening of the season at the northern shore resorts, and that is some months in the distance. So, there would seem little prospect of any nearby interruption to trade in normal hosiery, and not much doubt that it would be but momentary, in any event. This, apparently, is the view of the manufacturing body, judging from the ex-

AUTOGYP PROCESS SAVES TIME

Why waste time with the older methods of Bleaching and Dyeing?

The AUTOGYP PROCESS will bleach and dye to any definite required shade in ONE OPERATION, requiring but THREE HOURS for the entire process.

Think of the time this saves—7 to 10 hours—Not to speak of labor and handling which of course means increased production.

No kiers, special equipment or time for boil-offs is required for Autogyp removes all dirt, cotton seeds, motes, and shives from the grey goods while it is also simultaneously bleaching and dyeing to shade.

As the entire process is carried out in the same bath, there is also a large saving of steam and water.

Fabrics processed by the AUTOGYP method, retain their strength, and they are uniform in color, and have a soft loft and feel.

The Autogyp Process reduces shrinkage to an absolute minimum.

This process is applicable to Cotton, and Cotton and Rayon combinations, and other mixed fibres.

Write us regarding your bleaching and dyeing problems, or better still we offer a free test of this patented process in your own mills on a practical scale.

SURPASS CHEMICAL CO., INC.
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ALBANY, N. Y.

An Announcement
of Importance to the Textile Industry

THE merging of the National Yarn and Processing Company and the Standard-Coosa-Thatcher Company makes possible an even broader service to knitting and other textile mills which require and purchase yarn of unvaryingly dependable quality.

The combined facilities of these two great organizations, now grouped under one management, include:

Two spinning mills with a total of approximately 120,000 spindles, producing natural, combed and specialty yarns from 10's to 120's single and ply.

Two mercerizing plants with mercerizing and winding capacity of about 325,000 pounds per week.

A modern dye plant equipped for skein, package and warp dyeing with a weekly capacity of 100,000 pounds. Equipment for dyeing and winding rayon, and for the production of specialty yarns.

The Company is also prepared to supply unmercerized yarns, carded or combed, both single and ply, natural and dyed.

The new Company faces with satisfaction this opportunity to more fully serve the textile industry through a combination which extends the business and manufacturing ideals on which the parent company was founded in 1892.

STANDARD-COOSA-THATCHER CO.

CHATTANOOGA, TENN.

Sales Offices: Lafayette Building, Philadelphia
456 Fourth Ave., New York — Adams-Franklin Bldg., Chicago
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Canadian Representative: Wm. B. Stewart & Sons, Ltd. Toronto—Montreal

Standard

MERCERIZED YARN

pansion of plants and the fact that some seasoned mill executives are giving support to the establishing scattered small mills. Some attach more importance to over-confidence and too much expansion than to style freaks as a possible disturbing factor.

Dyeing stockings in flesh tints, for making it difficult at polite distance to distinguish between the bare and covered leg, probably will settle the question for the average woman. This, it is pointed out by observers of whims and fads and their effect and fate, would call for the use of stockings without the telltale seam, which is viewed as an augury for seamless knit without the seamed back, such a stocking being introduced a few months ago but attracting practically no attention in the trade. As the embryo innovation probably will pass out naturally after a short, if any, existence, it might appear there is unnecessary ado about it.

Mill Men and Buyers Discuss Part Mending Machines May Play

WITH repairing of hosiery by mechanical means becoming a trade, and stores competing with themselves in promoting the art of mending, there is heard much discussion of the question of the extent to which the life of a stocking may be prolonged and, in sequence, what may be the effect on sales. While some stores are expanding their repair service, using it for the advertising effect of mechanical demonstrations and making it appear that woman may reduce her hosiery bill by patronizing that service, some would, if they could, dispense with it entirely. This was brought out in recent interviews with buyers for large stores. Those holding a negative view of the feasibility of putting hosiery repair shops in a class with shoe mending establishments, doubt that many women will install repair needles in their homes, and that no great number will utilize the store repair service long after the public demonstrations have lost their glamor. Suppose, for example, said a department store buyer, that one or two runners in a pair of stockings have been "latched," at a cost of say 35 to 50 cents or more, "would the increased life of the stocking warrant that expenditure?"

It has been suggested that women subscribing to the practicability of having their stockings mended as they would their shoes, might be inclined to buy higher price hose. A rejoinder to this theory was that the woman who pays the high price usually is self conscious in matter of dress and would not feel at ease in a mended stocking. The really big field for repair machinery, says a department store manager, is in the mills. He maintains that, with the device in the hands of skilled operators, manufacturers would be able to make thirds of most of their "menders" and translate many of their thirds into seconds.

Repair machines have been and are being experimented with by manufacturers, and they are not in accord with this view. The executive of one of the better known mills, selling direct to the retail trade, says experiments have convinced him that it is more profitable to sell irregulars as is than to maintain a mending department. To do so, he says, often would cause discriminating buyers to ask "are these perfects as

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

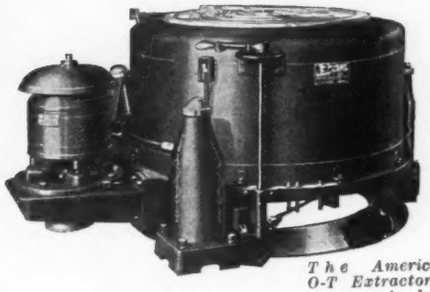
Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and chiffon hosiery.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SONS CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.



The American O-T Extractor—so easy to load and unload from any side.

Safety ... first and last!

THE O-T Extractor gets up full speed in a hurry! It whirls smoothly, and brakes to a full stop in a surprisingly short time. And it's *safe*—the cover cannot be raised until the basket stops spinning. Especially suitable for bulk or piece-goods plants. The O-T has no overhead structure, yet its above-the-floor motor is easily accessible for maintenance and lubrication. Write for facts and figures.

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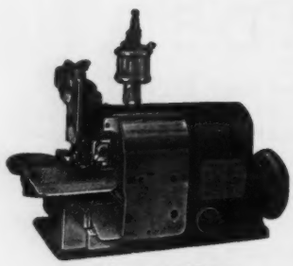

CLASS 60 MACHINE

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STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.

Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread FLAT SEAMING on Rayon Underwear.

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GOLD CIRCLE NEEDLES

NO MORE ROUGH RIVETS

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More and Better Knitting

because they are always smooth.

If you have not seen these improved needles or tried them, ask for samples.

Patent applied for

MANUFACTURED BY GRANITE STATE NEEDLE COMPANY LACONIA, N.H., U.S.A.

knitted or have they passed through your repair shop?" This question, he believes, would be raised frequently when competitive prices were named. It appears, however, that a substantial number of manufacturers see an advantage in operating a repair department as against selling open menders and leaving it to job lot buyers to build them up to be offered as seconds or, perhaps, regulars as they come off the knitting machine.

Hires Woman as Stylist for Men's Fancy Half-Hose

THE F. Y. Kitzmiller Hosiery Co., Reading, Pa., a recent organization to succeed the F. Y. Kitzmiller Sons Co., whose affairs in receivership are about to be wound up, has added a stylist to its staff, in the person of a woman who has been styling men's apparel in matter of colors. Ordinarily designing of half-hose is done by some one of artistic temperament in some one department of the mill. The Kitzmiller company is featuring the higher price lines, in conservative patterns, and this supplies the explanation for employing a professionalist stylist. A few weeks ago the Wm. Brown Co., Philadelphia, women's full-fashioned hosiery, employed a stylist. Her duties embrace visits to stores for a study of style and working out her conclusions as to just what she believes will appeal to women. As to men's socks, those who create style have aspired to no title other than inventor or designer, and most of them pattern for the low as well as the high price bracket. The appetite for novelties seems to be whetted with the increasing number of stylists, and it seems not a bad thing for manufacturers and, one might say, consumers and intermediate interests, although it is going to set a faster pace for mills keeping up with changes.

The volume business in fancy half hose continues to center on lines to sell for a half dollar and lower. There appears, however, increasing confidence in dollar socks of silk in mixture, and no decline in demand for plain color silk, coming out for Spr ing in pastel shades suggested by colors for shirts and neckwear.

A manufacturer of full-fashioned silk half-hose reports sales showing no drop, notwithstanding the color craze, and another, making women's full-fashioned, has added a line of men's, also knitted on flat machines. A manufacturer of seamless 12-thread, for the 75-cent bracket, says Spring orders show no decrease from last year, but it is noted that while he is adding no equipment for plain silk he has enlarged the plant for fancies, for the 25- and 50-cent brackets. Orders for men's hose for Spring are coming through in a stronger volume, numbers of mill lines being sold up solid to April, and for manufacturers in position to accept it, there is some substantial duplicate business in moderate price goods.

There is comparatively little holding back of orders for boys' and misses' hose. Some of the mills report being hard pressed for deliveries of sports lines, which leaves the inference dealers are not fed up with the idea that girls will take to the ankle hose. For them the seven-eighths length is filling the bill, while boys' golf stockings, in as strong demand as ever, are promising of the heaviest distribution yet witnessed.

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Natural, Dyed, Gassed, and Bleached

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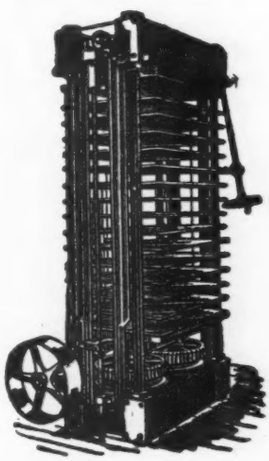

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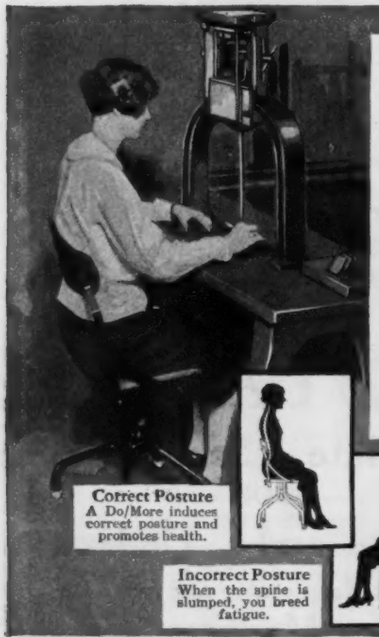

Correct Posture
A Do/More induces correct posture and promotes health.

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When the spine is slumped, you breed fatigue.

Correct Posture eliminates fatigue. Do/More correct posture induces: (1) full lung capacity breathing; (2) refreshening of blood; (3) free exhalation of carbon-dioxide; (4) natural elimination; (5) unstrained nervous system; (6) reduction of muscular effort. With seated workers healthy and alert, production speeds up—costs are cut.

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You want to cut costs—and increase profits! You want better work from healthy workers! You can get it. Try a necessary number of Do/More Seating Units in a department where fatigue runs rampant—undermining work and workers alike! Make it a satisfactory trial—equip half the department with the adjustable Do/More—*at our expense.* Watch results! The decision rests with you. If they do not sell themselves—return them, freight collect. It won't cost you a cent!

Absolutely No Obligation Simply Mail The Coupon

No need to wait—delayed profits never come! Clip and mail the coupon today. Fatigue is sapping work and dollars from your plant. Plug this profit-leak NOW.

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☐ Have "Do/More Man" near us call with complete information regarding your FREE TRIAL plan.

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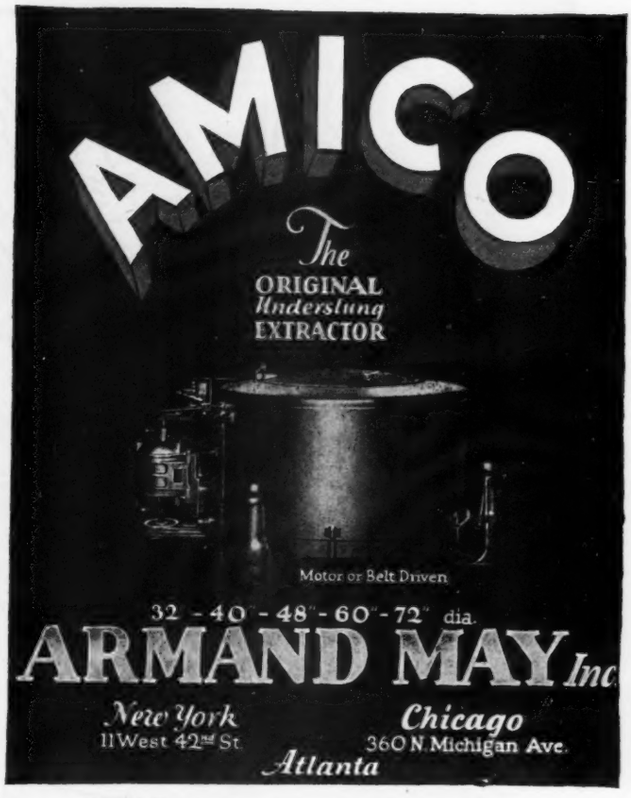
Heavyweight Underwear Sees Cut at the Opening

HEAVYWEIGHT underwear opened for the 1929-30 season under favorable climatic conditions, but it appears jobbers did not respond accordingly. Soon after the first showing of southern lines was made temperatures dropped to near zero in New York and to even a lower level in some of the better underwear marketing centers in the Northwest. There also had been a drop in the prices of the big southern group of mills, which seems to have been not so well received as the slipping in temperature. The trade, in view of cotton being at a higher level, had looked for last year's price list to be repeated. When, therefore, the P. H. Hanes Knitting Co., Winston-Salem, N. C., came out with a markdown of 25 cents a dozen for 11-pound shirts and drawers, 37½ cents for 14-pound union suits and 50 cents for 16-pound suits, there was some consternation among manufacturers, and jobbers were mildly surprised. All were prepared for the cuts subsequently announced by other southern mills.

Northern manufacturers were slow to follow in the downward revisions initiated in the South, and while they were deferring, distributors of other than branded lines seemed disposed to be in no hurry to place contracts. Some reasoned that if the reductions meant a price war was imminent, it might be advisable to give manufacturers time in which to come together for averting it, before doing much buying. Jobbers had previously expressed an opinion that it would be a mistake for mills to name higher than the 1928 prices. To have done so would have made for a very small attendance of buyers at the opening. The lower figures at least brought many of them to the front, and had all mills named prices, there seems no doubt that by the end of January a substantial amount of business would have been written, as manufacturers had conceded more than any had looked for, the reduction by at least one figuring 75 cents lower for 16 pound suits. It was the difference of 25 cents between the cut of the Hanes mill and that of another large concern that was construed in jobber circles as possibly foreshadowing price competition at the outset.

As some activity developed soon after the southern mills came on the market, northern manufacturers, one by one, fell in line, and the market assumed an encouraging aspect, although devoid of snap. The situation for manufacturers improved on advances in raw cotton and revisions in yarns, and it was common opinion that steadiness in cotton yarns was all that would be necessary for putting the heavy weight underwear market on an even keel, giving wholesale distributors an incentive to operate in a normal way earlier than was the practice in the last two years.

Trading in heavies served to stimulate interest in light weights, in which it was regarded quite certain the prices then obtaining would be adhered to. Summer lines are, of course, an entirely different proposition as compared with a few years ago, when competition was confined chiefly to bal briggans and ribs as one general line and nainsook athletic suits as another. Since that time the knitted has been yielding ground



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Neutrasol V-75 and Adol

For soaking raw silk, especially hosiery tram.

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For soaking raw silk or rayon. All purposes. Self emulsifying.

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For oiling rayon for knitting or weaving.

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A dyeing oil, for levelling and softening.

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For sizing Celanese and all other Rayons.

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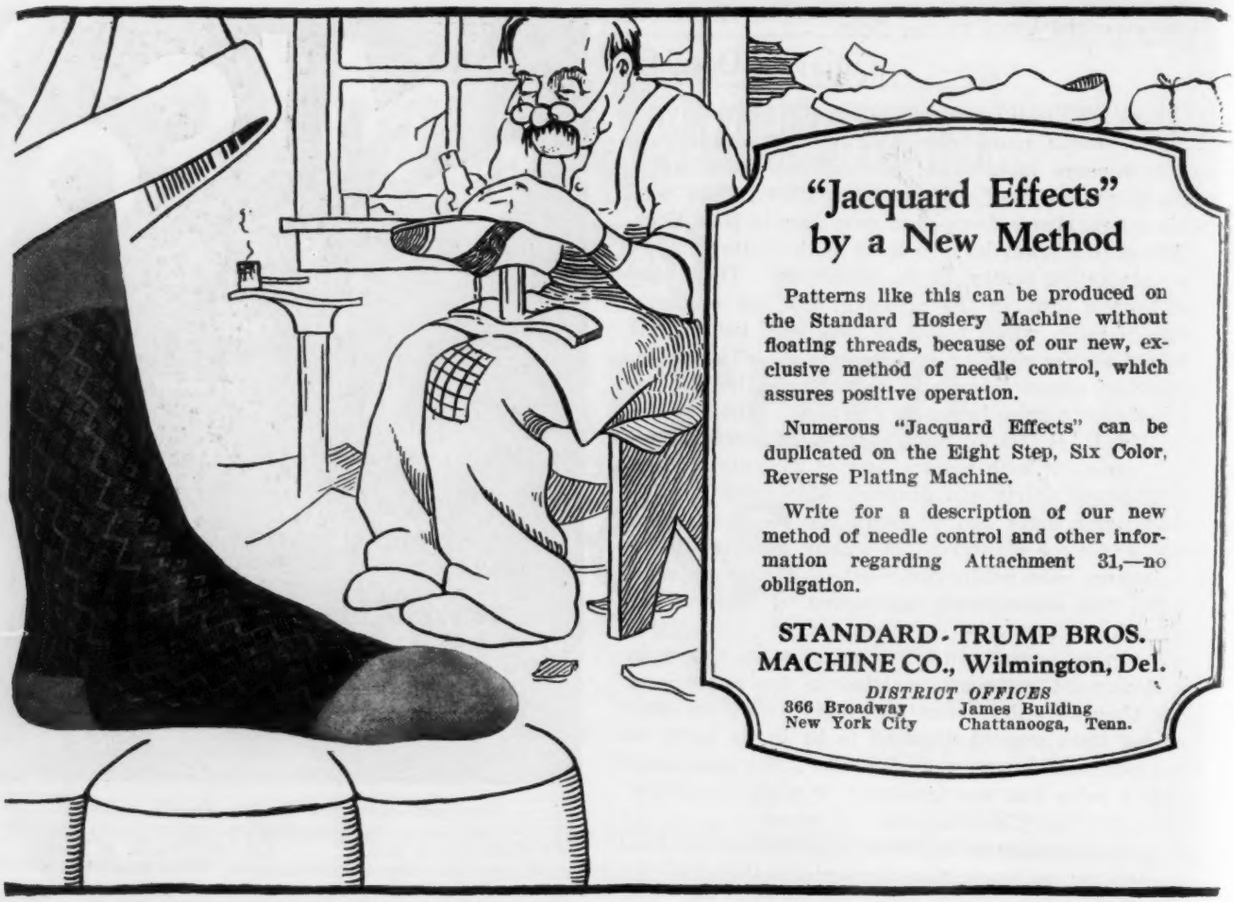

"Jacquard Effects" by a New Method

Patterns like this can be produced on the Standard Hosiery Machine without floating threads, because of our new, exclusive method of needle control, which assures positive operation.

Numerous "Jacquard Effects" can be duplicated on the Eight Step, Six Color, Reverse Plating Machine.

Write for a description of our new method of needle control and other information regarding Attachment 31,—no obligation.

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The Yarns Corporation of America — Quality Yarns

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RAYON

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Direct, Sun-fast, Tub-fast and Indianthrene Dyes.

The Yarns Corporation of America

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to rayon union suits and a variety of combinations, in which at the moment short woven drawers, largely in colors, appear as the outstanding item in style innovation. An up-state Pennsylvania mill last year entered the knitted athletic shirt field, and, according to an executive, produced and sold around 1,000 dozens. This year to date orders are for five times that number, and it is the expectation of the manufacturer that sales will exceed 12,000 dozens. The mill formerly was engaged in the manufacture of women's cotton underwear exclusively.

Among the Knitting Mills

LENGEL-FENCIL COMPANY, Reading, Pa., will establish a silk hosiery and underwear plant at Anniston, Ala., with an investment of approximately $300,000. William L. Lengel is in charge.

Pauline Hosiery Mills, Little Rock, Ark., are reported to be doubling the capacity of their plant.

Pilot Knitting Mills, Lexington, N. C., are installing 25 additional machines which will bring the equipment up to 100 machines. Men's hose is manufactured.

Ester Hosiery Mills are installing equipment at their plant in Burlington, N. C. M. R. Neese is secretary and general manager and J. T. Black is president.

Juvenile Hosiery Mill, Inc., Greensboro, N. C., is adding 50 Banner Jacquard machines to the original equipment.

Waldensian Hosiery Mills, Valdese, N. C., are equipping a plant with ten full-fashioned knitting machines.

R. A. Koholoss will operate a plant at Marshall, N. C., which will manufacture rayon lingerie, etc.

Lillian Knitting Mills Company, Albemarle, N. C., are installing six additional machines in the full-fashioned hosiery department.

Asheville Silk Hosiery Co., Asheville, N. C., will operate a new plant on Deaverview Road.

Metric Hosiery Mills, Burlington, N. C., have been organized by John S. Thomas, Simon Wolff, and others.

Carolina Hosiery Mills, Asheboro, N. C., is the name of a new fancy half-hose mill to be operated by E. D. and C. C. Cranford. Thirty machines will represent the initial installation.

McPhar Hosiery Mills have been organized at Marion, N. C. It is understood that half-hose will be manufactured, and that the initial equipment will include 53 machines. C. R. McCall is president, E. W. Parker, treasurer, and Reid McCurry, factory manager.

Standard Hosiery Mills, Burlington, N. C., of which John Shoffner is president, announce plans for a $500,000 full-fashioned manufacturing addition.

The building of the Virginia Maid Hosiery Mills, Inc., Pulaski, Va., will be 48x50 and 90x102 feet, one-story, and 18 full-fashioned machines will be installed. Thomas J. Wallner is president and treasurer.

William M. Deisher, of Reading, Pa., has purchased at auction the knitting mills of F. Y. Kitzmiller Sons, at Gate City and Norton, Va., and will place them in operation immediately.

Fidelity Multi-Design Machine Note.

The reception accorded the fancy true rib half-hose top merchandise, both with fancy legs and plain legs, has been beyond all expectations, says the Fidelity Machine Company, Philadelphia, Pa. There are now eleven substantial manufacturers of half-hose in the country, with the reputations for being leaders in the style development of half hose, that have either installed multi-design machines, ordered them or already have samples out and merchandise sold. The company states that in this day of color and style, the added stimulus of neat patterns and colors in a true rib top make this latest development increasingly important every day.

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Single Yarns
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TINTED YARNS
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Complete stock for immediate delivery
Samples and Prices Upon Request
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Natural---Gassed---Dyed---Bleached
MERCERIZED YARNS
All Counts and Descriptions for the Knitting, Weaving and Converting Trade
DIXIE
MERCERIZED YARNS

Full-Fashioned Manufacturing Problems.

(*Continued from Page* 451.)

needle-bars are not level across the entire machine. Any needle bars that are too high can be lowered either by adjustment to the screws on the needle-bar arms holding the needle-bar or adjusted by the needle-bar cam roller nearest to the needle-bars that are too high.

Another cause for certain sections not knocking-over properly is that the individual knocking-over bit-head, or plate, is too low, and then it is necessary to raise this until the trouble disappears.

Wherever making adjustments on the needle-bar or knocking-over motion, it is necessary to go easy as to the amount of additional raising or lowering to be done, as too much will start the cutting of the fabric. When cutting occurs, this will show that much adjustment was made and that it is necessary to take some off.

Whenever fabric contains numerous sinker lines or a roughness or cloudy fabric, this can usually be traced to sinker or catch-bar trouble. If the catch-bar is on too hard, sinker lines will occur, and also a very uneven stitch will be made. The action of the catch-bar controls the wale stitch, as well as the needle stitch, and if not properly adjusted, will make an unsightly piece of knitted fabric. When this occurs, the first thing to do is to take off some of the pressure of the catch-bar. If this condition is across the whole machine, it is necessary to take off the pressure by adjusting the screws on the catch-bar cam roller. There are times, however, when this is done, that the catch-bar will miss or jump. When this trouble arises, it is usually the cause of two things, namely, that the catch-bar is too low, and is what is called riding the sinkers, or that a falling bar on a sinker-head is out of level. By the riding of sinkers, I mean that the front of the catch-bar is resting on the top of the backs of the sinkers and therefore prevents the catch-bar from working properly. The proper setting for a catch-bar to prevent the riding of sinkers, is that the catch-bar should be raised slightly higher than the top of the sinkers at the point where the needle-bars are up and the machine is ready to make a course. To illustrate this point, I have made a drawing, Fig. 5, showing just the point to which I am referring.

Wherever the catch-bar is uneven over parts of the machine, it is then necessary to make adjustments on certain catch-bar rollers, where the unevenness occurs or make the adjustment on the catch-bar arm that holds the catch-bar. To test a catch-bar to see if it is out of level, stop the machine at a point where the top of the sinkers are just coming out of the sinker-head as shown in Fig. 6.

Then look across the machine at each head, and where the sinkers are in or out too far, it will show that the catch-bar is out of level, and this should immediately be leveled. Sometimes, however, the individual sinker-head is not level, which will show the sinkers being out too far, and if such is the case, then the sinker-head should be leveled with gauges.

The matter of falling bars being out of level is a common cause for catch-bar trouble, and the only way to set a falling bar is by gauge only. Many times a fixer will adjust a falling bar for the purpose of making a stocking run evenly on both sides by moving the falling bar either forward or backward, but this is something that should never be done. Always test out the falling bar with the gauge only before moving, and if it gauges right, then make the necessary adjustments on the striking jack head.

As I shall write several articles about the problems of full-fashioned hosiery, I shall stop here, and in my next article, I will continue with problems connected with a full-fashioned hosiery machine.

Seelcting the Proper Dyestuffs.

(*Continued from page* 454.)

length of time, and the salesman is not alert to the change, they will make a poor showing in the eye of the buyer.

There are apparatuses to be had (a Fadeometer, for example) built to test fastness to light in any degree and in a short time, but not all dyers are able to stand the expense of such an instrument. The writer has tested his dyes for fastness to light quite efficiently by wrapping a part of the dyed sample in brown post-office paper, leaving a part of the sample uncovered and hanging the whole near a pane of glass in a window for some time. Some colors have been found to fade in four or five days, others will take two weeks or more. One can select colors fast-to-light quite satisfactorily in this way.

In one of the accompanying photographs are shown the results of a dye that has faded badly after an exposure of three weeks to the light, and should have been discarded. However, it was found that it was a very good color in other ways. It worked very level even in the minutest quantity; in an alkaline bath it dyed the cotton, leaving the silk uncolored with a neutral bath, it would color the silk also as shown in the sample, it was fast to washing. For these reasons it was retained to use for shading purposes, to tone down a too ambitious, fiery brown, or when only a few grams of dye was needed, and to correct shades that needed a little grey.

Exposing dyed tests to light for ordinary purposes may be done in the manner explained above, sometimes however goods have to stand the weather also, as in the case of cloth for outside wearing apparel, parasol material, uniforms, hats, hat bands, millinery goods, and the like; in which case the tests can be hung in a convenient place outdoors, nailed outside on the wall or somewhere on the roof of the mill where they can be looked at occasionally while exposed to rain, sun, winds, and everything that may come along.

[In the next article of this series to appear in an early issue, Mr. White will discuss fastness to light, crocking, milling, cross-dyeing, etc.—The Editor]

New Yarn by Du Pont Rayon Company.

Announcement is made by the Du Pont Rayon Company, that the new name of the new du Pont acetate process rayon for which American rights have been acquired is to be "Acele". A special acetate process department has been organized to take charge of it. Production will be directed by C. J. Bacon and sales by F. R. Scull.